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CYCLE GUIDE

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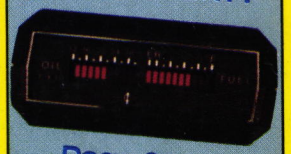

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AND MORE:

Honda's New CR250R: Fast But Flawed

Fuel Injection From Kawasaki

$14,000 BMW R100S

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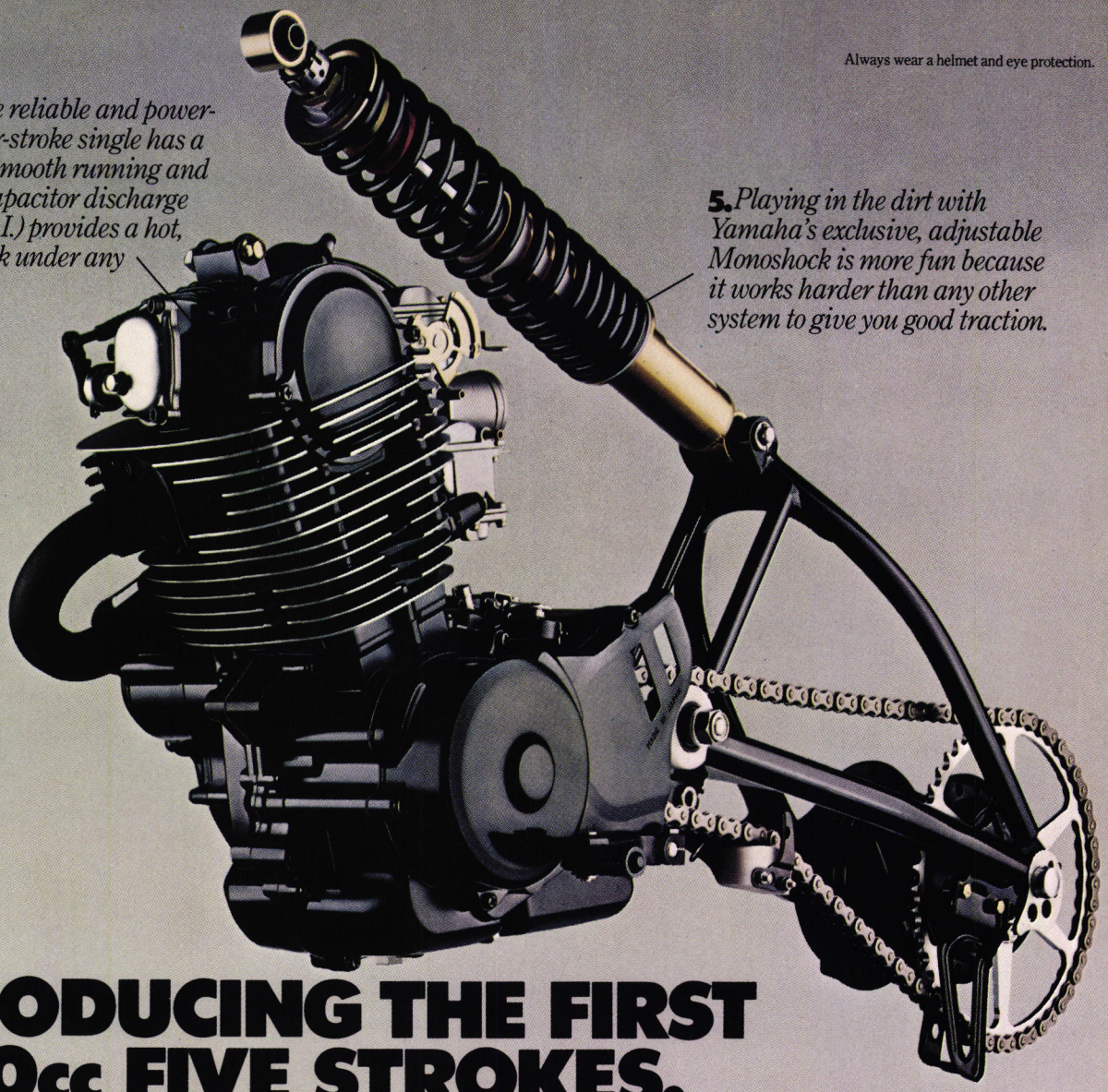

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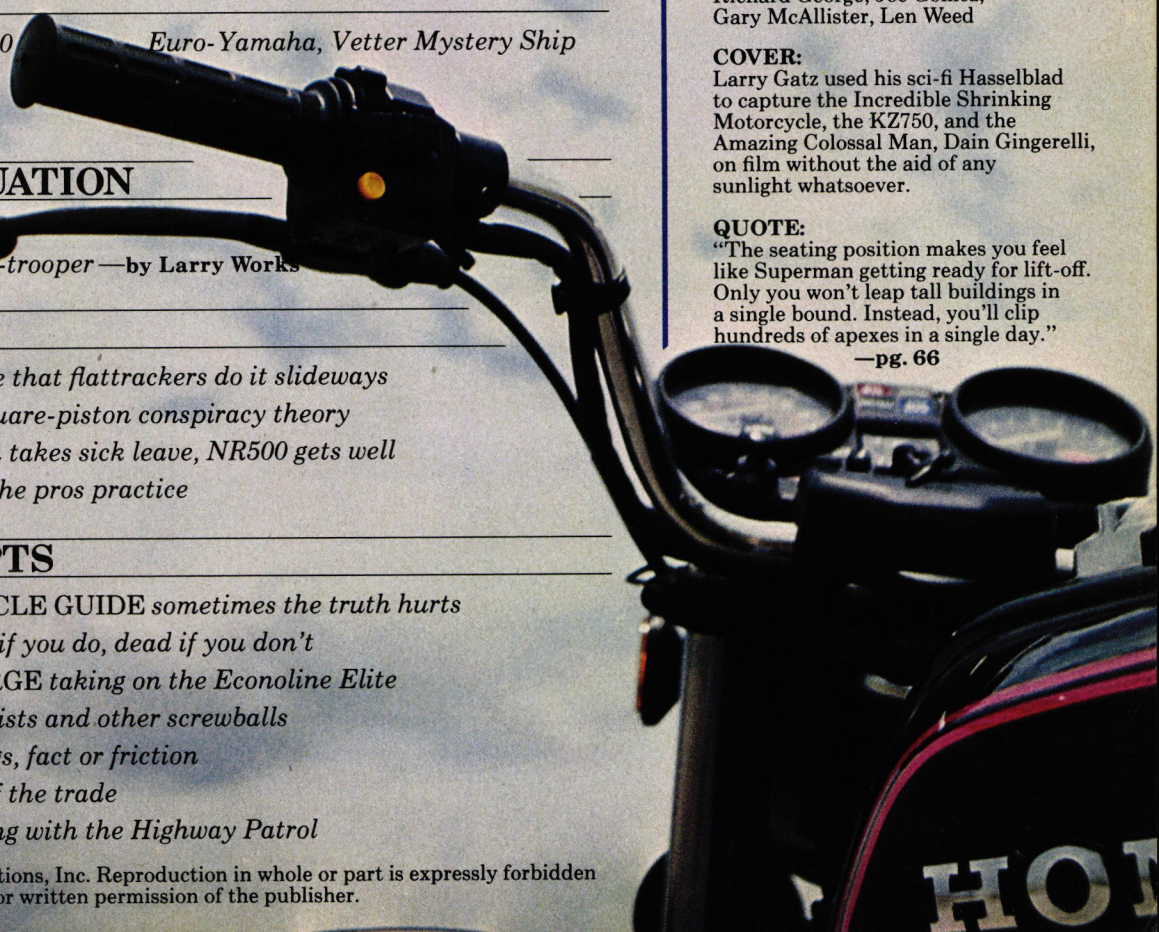
Larry Gatz used his sci-fi Hasselblad to capture the Incredible Shrinking Motorcycle, the KZ750, and the Amazing Colossal Man, Dain Gingerelli, on film without the aid of any sunlight whatsoever.

QUOTE:
"The seating position makes you feel like Superman getting ready for lift-off. Only you won't leap tall buildings in a single bound. Instead, you'll clip hundreds of apexes in a single day."
—pg. 66



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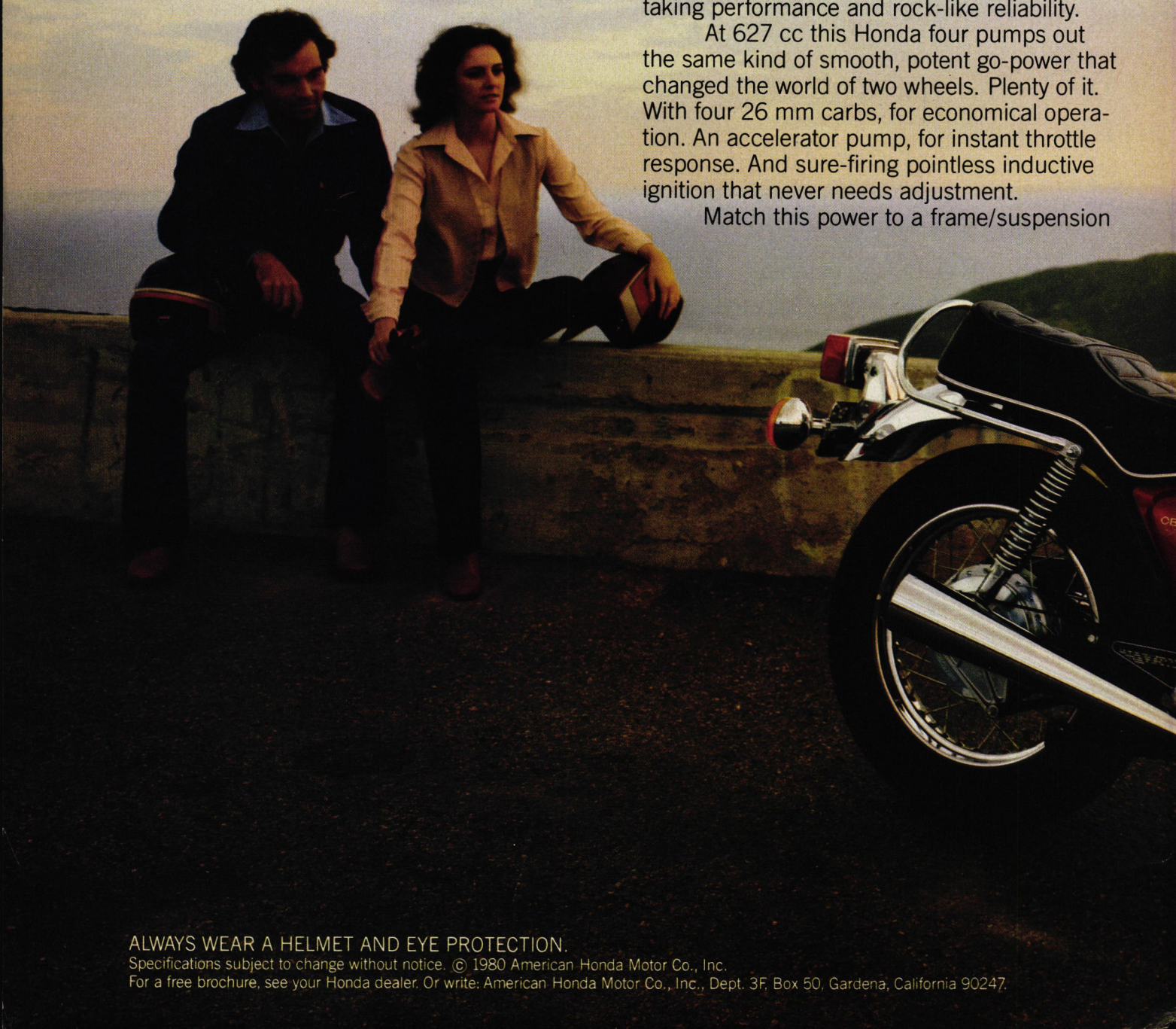

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package that's a lot lighter than its nearest four-cylinder competition, and you've got a new dimension in middleweight street quick. Thanks to a knockout power to weight ratio.

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But stoplight-to-stoplight is only part of it. Take the CB650 out on your favorite stretch of back road and see how the rigid double-cradle frame, low-stiction forks, and two-stage shocks help you unkink the twisties. The engine is narrow, to give you outstanding cornering clearance. And there's plenty of stopping power—with a powerful front disc brake and big rear drum—to match the go.

Now tackle the interstate, and feel how suspension and a stylish stepped saddle combine to isolate you from the myriad jolts and bumps of freeway riding. It won't take you long to realize that smooth isn't confined to the CB650's classic good looks.

But the essential quality common to all true classics is that they stand the test of time. That's what makes this Honda a classic, well beneath its meticulous finish. And well beyond the ordinary run of middleweight street machinery.

Think of the Honda CB650 as an uncommonly traditional classic. As uncommon, in fact, as the men who ride it.

HONDA

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OFF-ROAD

MAKE & MODEL	ISSUE	ENGINE TYPE	WHEEL TRAVEL, IN. FRONT/REAR	WEIGHT, LBS	HORSEPOWER @ RPM*		GEARS
Can-Am 175 Qualifier	Aug. '78	Two-str.	7.7/7.1	234	16.4	9000	6
Can-Am 250 MX-5	Jan. '79	Two-str.	10.8/10.0	218	32.1	8500	5
Can-Am 250 Qualifier III	Feb. '80	Two-str.	9.7/9.8	230	25.2	8000	6
Honda CR125R	Jan. '80	Two-str.	11.5/10.8	202	20.8	10500	6
Honda CR250R	May '79	Two-str.	11.8/11.0	220	27.7	7500	5
Honda XL185	March '79	Four-str.	7.4/6.75	239	11.2	7500	5
Honda XL250S	Oct. '78	Four-str.	7.8/7.7	262	14.8	8000	5
Honda XR185	March '79	Four-str.	8.0/7.75	221	12.8	10000	6
Honda XR500	May '79	Four-str.	8.5/8.6	273	25.8	6500	5
Husqvarna 125CR-'80	Nov. '79	Two-str.	11.8/11.8	214	18.8	11000	6
Husqvarna 250CR	Dec. '78	Two-str.	11.8/11.8	227	24.3	8500	6
Husqvarna 250WR	Aug. '79	Two-str.	9.5/9.5	238	21.9	6500	6
Kawasaki KLX250	Sept. '79	Four-str.	9.8/10.5	239	15.2	8500	5
Kawasaki KX125 A5	Oct. '79	Two-str.	9.8/10.0	194	20.0	11000	6
Kawasaki KX250 A5	June '79	Two-str.	11.0/10.9	219	27.9	8000	5
Maico 400 MI	April '80	Two-str.	12.3/12.0	233	35.5	7000	5
Maico 450MI	April '80	Two-str.	12.3/12.0	236	37.0	7000	5
Montesa Cappra 414 VE	Oct. '79	Two-str.	10.9/10.7	236	28.5	6500	4
Suzuki PE175	Aug. '78	Two-str.	8.8/9.4	216	11.2	9000	6
Suzuki RM125T	Dec. '79	Two-str.	11.2/11.7	200	19.8	10500	6
Suzuki RM250N	May '79	Two-str.	11.2/11.8	218	27.1	8000	5
Suzuki RM400N	Sept. '79	Two-str.	11.2/11.8	229	28.1	7500	5
SWM 175 ISDT	Aug. '78	Two-str.	10.0/10.0	220	17.3	9500	6
SWM 250 MX	Nov. '78	Two-str.	10.0/10.0	216	29.5	9000	5
Yamaha Pro-Tec 600	Nov. '79	Four-str.	10.5/10.1	262	46.2	6500	5
Yamaha IT175F	Aug. '78	Two-str.	7.2/7.2	217	15.7	9000	6
Yamaha IT250G	Dec. '79	Two-str.	9.8/9.8	244	27.7	8000	6
Yamaha YZ250G	March '80	Two-str.	11.2/11.6	217	29.6	8000	6
Yamaha YZ400F	Feb. '79	Two-str.	10.7/10.4	226	36.9	7000	5

*Horsepower shown is taken at the rear wheel and does not account for transmission losses between the engine and rear wheel. These results may differ from manufacturer's claims or from results obtained using a different dynamometer.

STREET

MAKE & MODEL	ISSUE	ENGINE TYPE*	QUARTER-MILE SEC./MPH	TOP SPEED, MPH	WEIGHT, LBS	FUEL CONSUMPTION, MPG	STOPPING DISTANCE FROM 60 MPH, FT.
BMW R80/7	Oct. '78	2C	13.47/97.9	104	442	38-46	138
BMW R100T (Dressed)	Aug. '79	2C	13.81/92.9	119	521	38-53	142
Ducati Darmah	Sept. '78	90-deg. 2D	13.41/97.5	118	487	25-40	120
Dunstall-Suzuki GS1000 CS	July '79	4A	11.32/117.0	154	488	37-.5	124
H-D CLE Sidecar	Sept. '79	45-deg. 2D	17.60/69.3	91	1036	25-35	181
Honda CB400T Hawk	March '80	2B	14.37/88.6	100	391	51-65	139
Honda CX500	Feb. '78	80-deg. 2E	13.86/93.4	106	449	28-50	134
Honda CX500 Custom	Aug. '79	80-deg. 2E	14.12/92.9	102	468	44-51	146
Honda CB650	Feb. '79	4A	13.29/99.9	113	447	37-51	131
Honda CB650 Custom	Dec. '79	4A	13.10/99.8	113	447	44-52	131
Honda CB750F	Oct. '79	4A	12.41/106.8	128	524	31-52	135
Honda CB750K	Nov. '79	4A	12.77/105.8	124	525	38-52	130
Honda Interstate	March '80	4C	13.40/96.0	121	718	33-45	146
Honda CBX	Dec. '79	6A	11.86/114.5	130	555	19-36	145
Kawasaki KZ650 Custom	May '79	4A	13.16/100.2	116	483	45-49	125
Kawasaki KZ1000 MkII	April '79	4A	12.06/110.3	130	545	34-46	129
Kawasaki KZ1000 ST	April '79	4A	12.23/111.0	132	574	38-45	130
Kawasaki Z1-R	April '80	4A	12.24/110.6	130	552	35-48	131
Kawasaki KZ1300	March '79	6A	11.79/115.7	140	664	31-39	133
Laverda 1200 Jota	Dec. '78	3A	12.54/105.0	121	518	29-37	145
Suzuki GS425N	March '79	2B	14.59/88.8	NA	382	45-55	NA
Suzuki GS750LN	Sept. '79	4A	12.87/103.5	120	526	41-50	129
Suzuki GS850N	March '79	4A	12.81/104.0	116	566	35-45	153
Suzuki GS1000EC	Nov. '78	4A	12.15/110.9	131	520	31-49	126
Suzuki GS1000LN	June '79	4A	12.39/108.4	130	526	39-50	129
Suzuki GS1000S	July '79	4A	12.43/110.0	132	539	39-45	124
Suzuki GS1100ET	April '80	4A	11.43/118.3	140	544	37-49	116
Triumph Bonneville	Dec. '78	2B	13.41/96.2	110	414	42-49	NA
Triumph Bonneville Special	July '79	2B	13.94/96.2	110	411	45-55	175
Yamaha RD400F	June '79	Two-str. 2B	14.16/90.2	98	355	30-43	129
Yamaha SR500E	April '78	1B	14.98/84.2	92	364	49-58	132
Yamaha TZ750E	April '79	Two-str. 4A	11.62/125.5	180	331	NA	NA
Yamaha XS850LG	Feb. '80	3A	13.10/101.7	116	548	42-55	144
Yamaha XS1100F	Nov. '78	4A	12.12/111.9	134	573	29-47	136
Yamaha XS1100SG	Jan. '80	4A	11.94/112.6	135	572	42-47	129

*A-Transverse Vertical, B-Vertical, C-Horizontally Opposed, D-Tandem Vee, E-Vee

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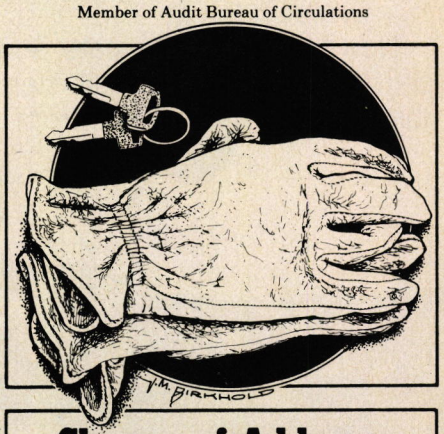

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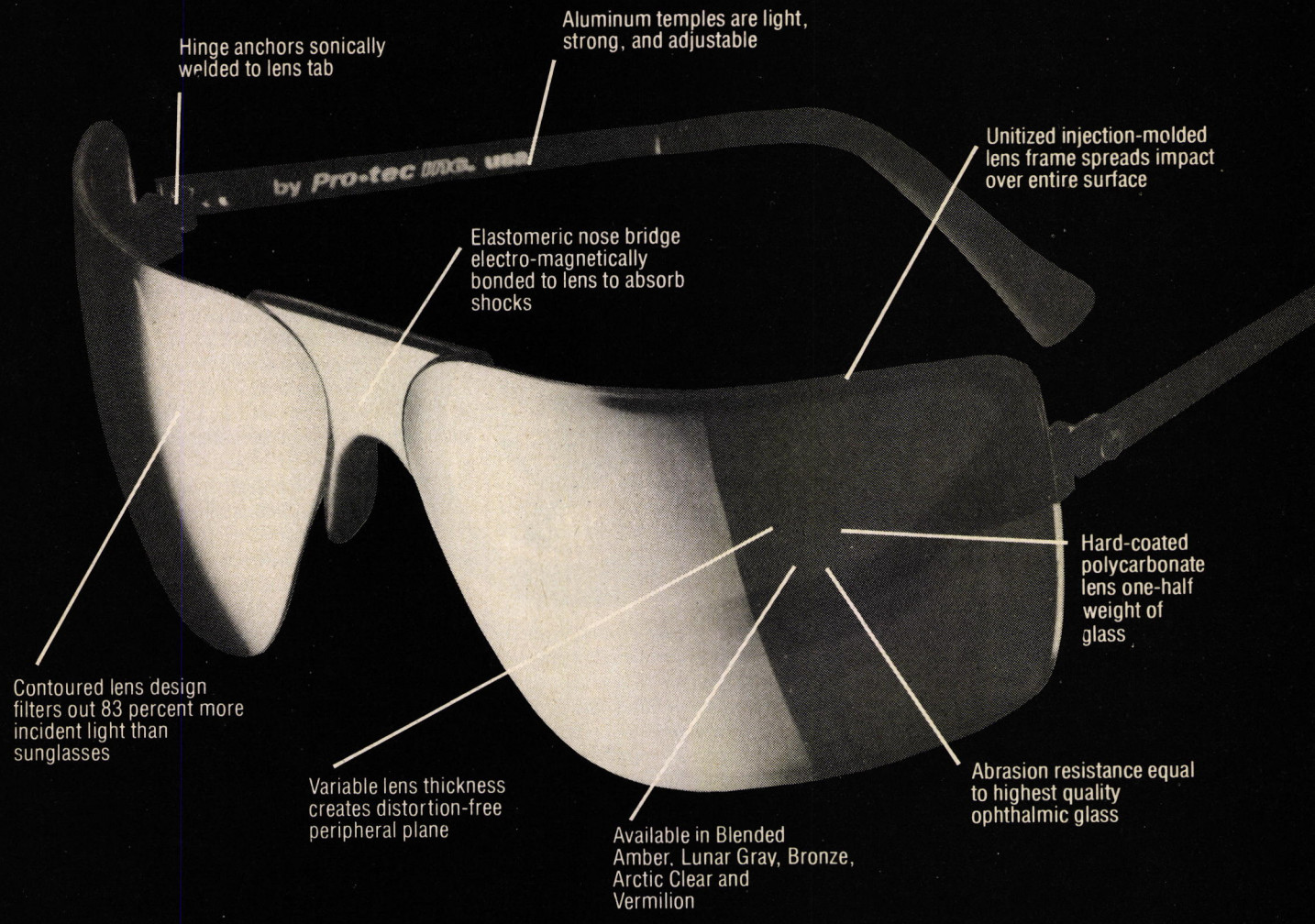

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Editorial

Riding in the High-Performance Mode

You're damned if you do, dead if you don't

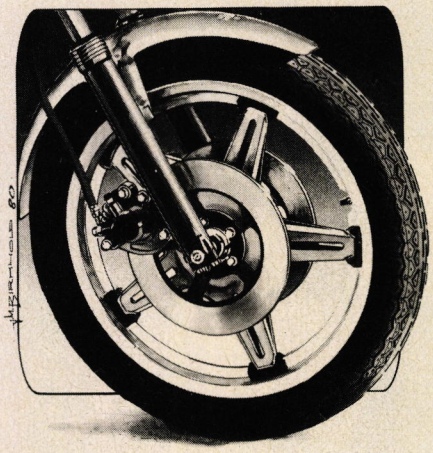
• One of the reference points I use any time a street bike is being evaluated is the simple but elegant phrase "high performance." But there are a whole lot of people out there in NHTSA-land that would like to prune that phrase from the motorcyclist's vocabulary, for at the mere mention of it the bureaucratic mind seizes up solid, like a 125 motocross engine with a pound of sand in the crankcases.

On the all-time top-10 list of safetycrat hobgoblins, in fact, high performance ranks right up there with 150-mph speedometers. It's no wonder there's an undercurrent of enthusiasm for a limit on motorcycle horsepower. Keep excessive power out of the public's hands, the reasoning goes, and you'll create safer riders.

Those who feel threatened by high performance are appalled by the Suzuki GS1100. After all, what you've got here is as much pure sauce as you can buy right off the production line anywhere in the world—106 hp at the crankshaft. Wrapped around it is a motorcycle capable of testing the limits of natural law in every direction. With credentials like these, it's a wonder the safety lobby isn't already at Suzuki's door with torches, pikes and pitchforks, like a crowd of extras in a Frankenstein movie, determined to rid the world of the GS11 menace.

There's just one problem with labeling a high-performance bike like the GS as a cause of motorcycle accidents—it's probably one of the safest bikes you can buy. Aside from its undeniable weight and sizable seat height, nearly every aspect of the Suzuki has a safety-related function. A chassis that never loses its composure does indeed invite speed, but it also provides the ultimate in controllability no matter how extreme the circumstances happen to be. The tires are rated for terrifying speeds, but they also grip the road in all kinds of weather. The halogen headlight carries high-performance connotations, yet the safety aspect of improved night vision is self-evident. The Suzuki's brakes also offer the best wet weather braking, not to mention the shortest stopping distances, of any street bike ever tested by this magazine. And while the engine's horsepower rating might seem large, it has enough muscle to get you out of trouble immediately and without a downshift.

As it turns out, real-world motorcycles refute the claim that high performance is synonomous with danger. Sure, when it's



used to describe motorcycle behavior, it arouses excitement, but only because it signifies a motorcycle supremely competent in every sense. Bikes that do not deserve the lable are seriously compromised in comparison. Apparently motorcycles are thought of differently from airplanes, and that might explain why high performance carries such negative connotations. An aircraft is designed to have emergency capability, a reserve of power or maneuverability that can usefully extract the machine from the predicaments that humans are prone to put it into. A GS11 is just a bike with a reasonable amount of emergency power.

I'll agree that there's a problem with high performance in motorcycling, but it doesn't lie with the bikes themselves. A high-performance motorcycle is just another way of saying a safe motorcycle, no matter how you slice it. The problem lies with high-performance riders—there aren't enough of them. Motorcycle riding in this country rarely progresses beyond the twist 'em and shift 'em stage. Basically, the average rider knows just enough to be dangerous. No matter how powerful a motorcycle happens to be, riders with such rudimentary skills will lose control of the situation.

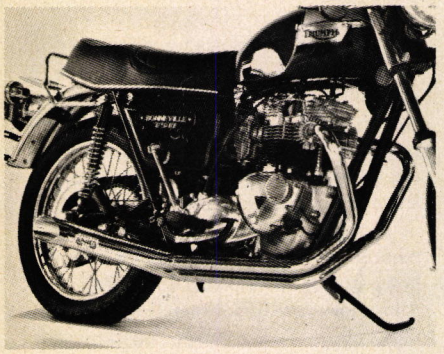
Right now the primary task facing anyone concerned about governmental interference in motorcycling is the creation of more high-performance riders. Each of us must foster a renewed pride in our ability to control a motorcycle and encourage the same outlook in others. Just as a reserve of emergency power is necessary, so too a reserve of riding skill is necessary to cope with emergency situations. We need more riders who can take avantage of the riding safety motorcycles like the GS11 afford.

At the moment, most discussions of riding skills are generated by elitism rather than genuine interest. Just checking the number of unscarred centerstands and footpegs among the local batch of braggarts prowling the back roads confirms it. But as long as the act of riding a motorcycle makes people think they're fighter pilots, they might as well live up to the image. All it takes is a determination to use every mile to improve their skills—not a difficult task, since the operation of the machine rather than the destination might be the most fascinating element of bike riding. What we need is a new generation of riders sensitive to vehicle dynamics and proud of their mastery of a motorcycle's capabilities. Certainly, everyone should be a little afraid to lean it over—that's what keeps you alive, after all. But high-performance thinking is not only justified, it's required.

The reason lies in the fact that emergency situations require the same skills that a racer uses to get around a racetrack. Maximum braking and maximum lean angles are mandatory, yet the oridinary street rider fears his front brake and finds radical bank angles disorienting. The only way for him to learn the necessary lifesaving riding skills is to carefully select a deserted section of road with open corners and practice them. Perhaps what we need is an advanced rider's program similar to what the Motorcycle Safety Foundation has already established for beginning riders. In a controlled environment, the average rider can plunge into a high-performance learning environment and acquire the necessary riding skills without endangering himself.

It could be that the learning process will take its toll—but for every injury, 20 lives will be saved. And that's the kind of cold-blooded equation the safety lobby understands. Me, I reckon the real question these days is reducing the number of motorcycle accidents, not just reducing the speed at which they occur. Considering the number of new riders rolling out of motorcycle showrooms these days, such a distinction is more important than ever. And the only sure-fire strategy to accomplish this goal requires high-performance riders—that is, building full emergency capability into the human navagational system as well as into the motorcycle hardware. You can start just by taking a different attitude the next time you ride. You'll be damned if you do—what with traffic cops these days—but you'll be dead if you don't. —*Michael Jordan*

PRO-formance lineup for the 80's



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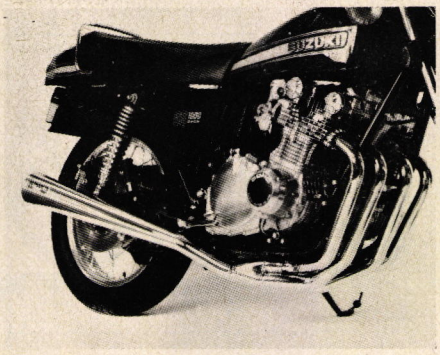
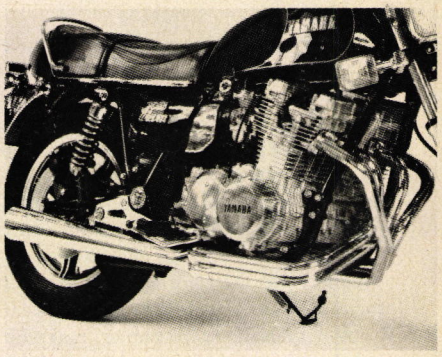
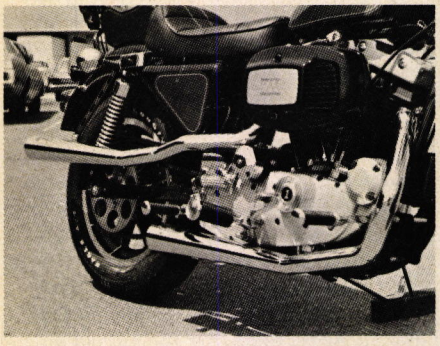


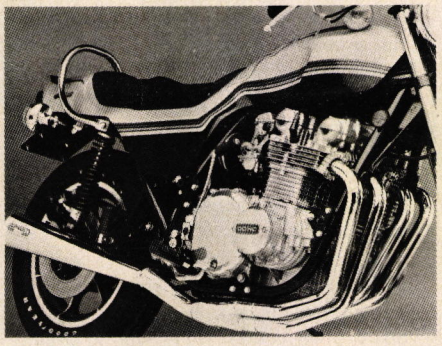
SUZUKI
10-1180 4 into 1 **$202.95**



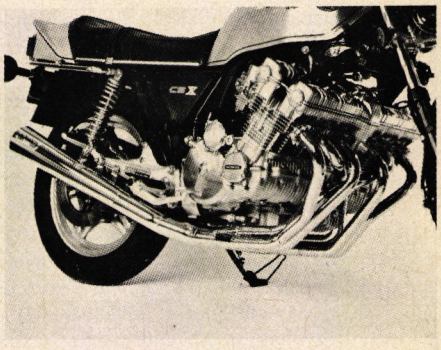
YAMAHA
10-1412 4 into 2 (cross-over) **$246.50**



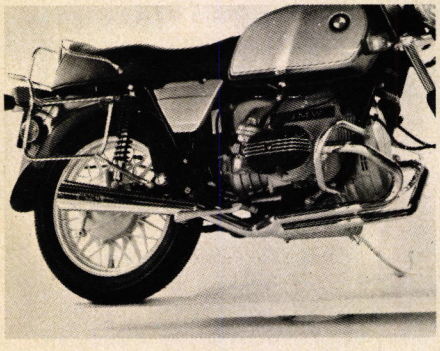
HARLEY
10-1060 "twice pipes" **$116.95**



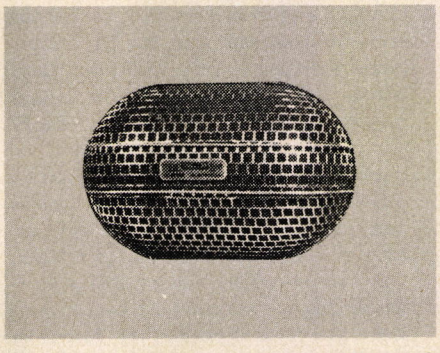
KAWASAKI
10-1517 4 into 1 **$202.95**



HONDA
10-1295 6 into 1 **$290.50**



BMW
10-1836 2 into 1 **$149.95**



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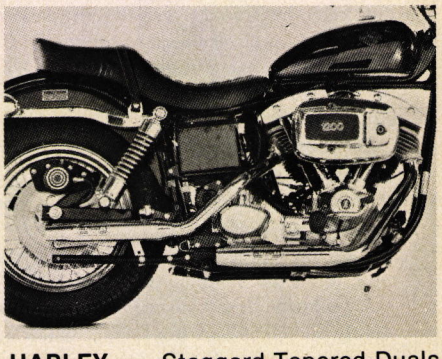

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Thompson At Large

The El Camino Kid vs The Econoline Elite

Sometimes, even the geeks from Walnut Acres get it right

• The day you stop being a serious racer some pretty peculiar changes overtake you. For one, you stop measuring how well you're doing in life by where you were when the flag fell at the last race. And for another, you start to put on weight as the money you used to pour into pistons and tires goes instead into potatoes and steak teriyaki. But I think the most wrenching change is vans.

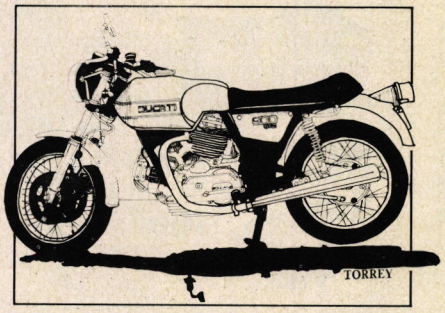
While I was racing, a van was the most crucial non-motorcycle part of racer's life. It was a lifeboat, cargo hauler, makeshift workshop, low-rent motel and, most of all, a symbol of how seriously you took your racing effort. No matter whether your van was covered in grime or neatly organized sponsor's stickers, it told all those other people out there who weren't racers that you were special. Your van wasn't to be confused with some teenybopper's cryptocruiser, nor some urban stud's sin bin or a guns-and-whiskey freak's off-road Rollin' Home. You could always spot a racer's van a mile off, and the message it delivered was always the same: This guy is *serious*. He'll put up with excruciatingly lousy fuel economy, horrendous insurance fees, ear-splitting interior noise levels and Spartan accommodations just to do what *you*, Mr. Oldsmobile Cutlass Freeway Gawker, won't: He'll drive this thing 900 miles a weekend, eat in it, sleep in it, work on his bike in it and then put his hide on the line at some godforsaken racetrack you never heard of because of it. And he'll do it every weekend of the year if the weather and the sanctioning bodies permit. This here van *proves* it.

So when I hung up my leathers for the last time, it slowly occurred to me that my van was out of place. Without a racing motorcycle tied down in its belly and a finish line waiting on the other side of the dawn, a racer van is just so much thirsty truck.

My solution then—seven years ago—was simply to sell it and buy a succession of street bikes. After that, I never gave the van question another thought, except to marvel at how nice the vans from Detroit grew each year. And then I discovered Dirt.

Not Serious Dirt, mind you; just playdirt. You know; long, lazy powerslides, loamy roosts, exhausting but exhilarating whoop-de-doos. The weekly purging of a middle-aged motorcyclist's demons. Playbike dirt. And that brought a problem: How to get playbike to playground? Suddenly I'm back in the game, and so my thoughts once again returned to a van.

But the game had changed, and so had



the vans. Huge, exotic transcontinental monsters had taken over from the Econolines and Chevans of my youth, and the price tags left me gasping. And so it was that slowly, hesitatingly, I came to commit the ultimate blasphemy of a Serious Racer: I bought an El Camino.

If you're like me in that you began racing in the mid-Sixties, you probably know the feeling: El Caminos were for hopeless dilettantes. Suburban types who would show up at the races with their unserious alleged race bikes tied awkwardly in the back where Rover and the lawnmower were yesterday. I always associated the things with pleasant enough fellas from some housing development called Walnut Acres who invariably raced either sloth-slow Honda 305s or potato-chip-fragile 125s and 100s, but that's because I started racing in California. Later I found friends from New York who felt the same way but said that the El Camino racers were people from Levittown, Long Island, who raced Yamaha YA-6s. Instant backmarkers, all of them. And so the El Camino became a pariah truck for the True Racer; a pseudo-hauler for pseudo-racers.

Nobody I knew thought that El Caminos were any damn good for real racer-types. After all, like any open pickup-type truck, they had no security, no weather protection, no room to work on the bikes in a rainstorm and . . . and besides, the guys from Walnut Acres drove 'em.

Only a few people had the panache to drive El Caminos to races and survive this put-down; one was Ron Grant, who showed up one day at Antelope Valley Raceway with a brace of Al Fergoda Yamahas knotted together in back. As I recall, he won everything in sight that day, but the El Camino stigma didn't stick to him; after all, he was, you know, *Ron Grant*. The social arbiters of roadracing may have clucked their tongues, but nobody suggested that he was unserious. Which should have told us all something.

So it was quite a shock for me to discover, in the process of finding the right vehicle for playriding, that I really *liked* El Caminos. I couldn't afford one of the huge new vans, nor even, for this project, one of the splendid new mini-trucks (of which there are three among the *CG* staff), so gradually, imperceptibly, Chevy's hybrid caruck drew its reins around me until one day I was driving home in a beautiful silver 1969 El Camino. And somewhere in between listening to the music of the 307 V-8 murmuring through its headers and duals, in between tapping the throttle lightly to let the 550 CFM Holley four-barrel and Edelbrock riser manifold send remember-fast-cars shivers up my spine, in between all that, a tiny, niggling, nagging thought kept fighting to the surface of my mind: I was having fun, dammit, I loved the thing, but I was unserious. I was one of *Them*.

Now, I won't pretend that this thought ruined my day, but it did give me pause. Here was a flash of pure prejudice straight from the pit of the unconscious; how important was it? Did I care if young heros driving Dodge Tradesman racer vans to the Indy Mile thought I was some geek from Walnut Acres, some over-the-hill old man who actually didn't have enough of the Right Stuff anymore even to drive around in the Right Truck?

No. I didn't care, and for some curious reasons. First is that this El Camino, which for some unfathomable reason my wife abruptly christened "Tex," actually is a wonderful sort of compromise; it delivers 18 mpg all day, can haul whatever I like, and with the generous application of Ancra tie-down mounts, has already swallowed three big bikes and, thanks to its air shocks, lived to tell the tale. This is hardly the mark of a pseudo-hauler. Unlike a monster-van, my diminutive wife can drive it without fear of squashing unseen Rabbits or Bugs, and, since I never drive it more than a day's worth of miles away from home, its security/weather drawbacks don't even count. If the weather's bad I don't leave the fireside, and since it's for playbikes, I play in local playgrounds. So the El Camino in fact is every bit as serious as any racer van.

Most interesting of all is this, though: Since I bought it, my old El Camino actually has increased in value. Which means that either a lot of racers are hanging up their leathers, or that maybe, just maybe, those guys from Walnut Acres weren't such geeks after all. —*Steve Thompson*

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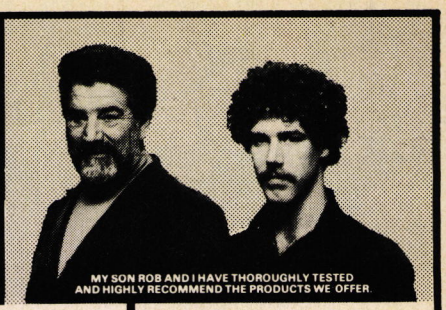
MY SON ROB AND I HAVE THOROUGHLY TESTED AND HIGHLY RECOMMEND THE PRODUCTS WE OFFER.

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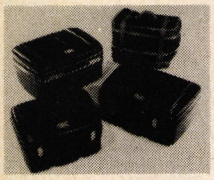

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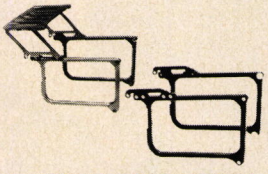

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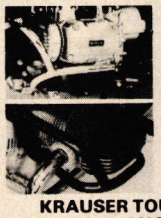
ATTACHMENT KIT package - required with above $27.00
Kits are available for BMW, Honda, Kawasaki, Laverda, Moto Guzzi, Suzuki, Yamaha, and Universal for other touring bikes. State year, make and model when ordering.



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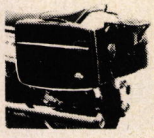

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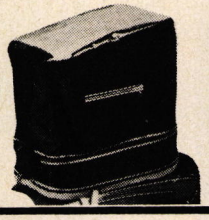

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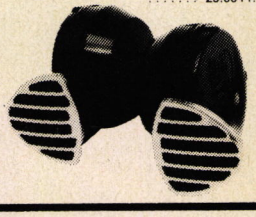

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Albert touring bar-end mirrors, left and right . . . . . $19.00 ea.
Albert sport bar-end mirrors, left and right . . . . . $18.00 ea.
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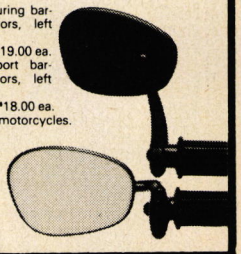

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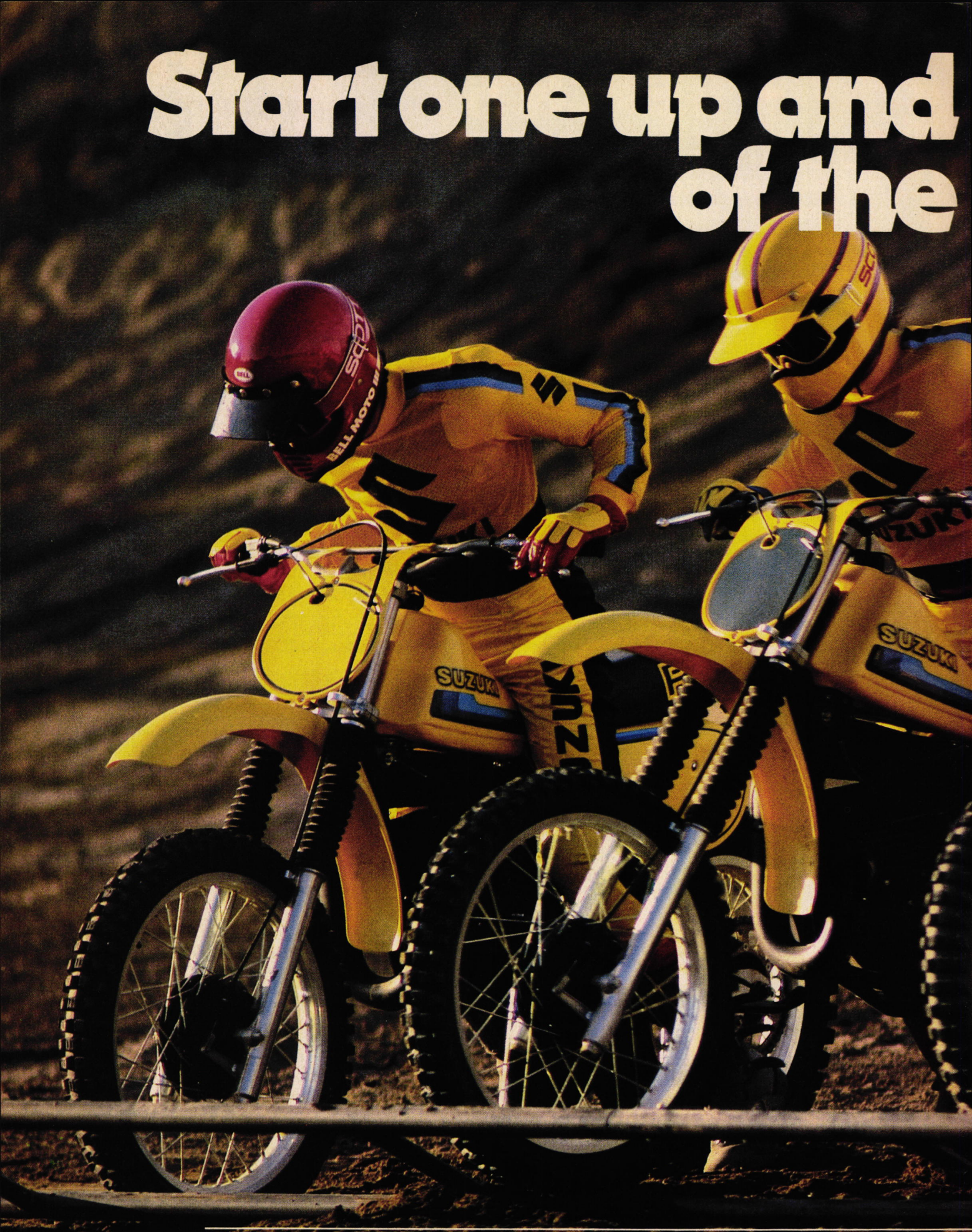

Ride with care. Always wear a helmet and protective apparel. Ride only where authorized and respect the environment.

listen to the whine competition.
No wonder the other guys whimper when you rev up Suzuki's new Yellow Screamers. All three, RM-125, 250, 400, are quick. Trick. And slick as works.
For instance, each comes with the most finely tuned suspension this side of a works bike. New oil refillable gas/oil shocks have four damping adjustments. Non-flex swingarm is extruded aluminum. And the leading axle front air forks dish out nearly a foot of travel.
We could mention many more things. Big things like the works-type roller chain guide, race-proven Power Reed™ engine, and new straight rear brake cable.
And little things like improved fenders and handlebar grips.
But we think we've given the other guys enough to worry about.
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Letters

Dashing writers,
Shoe and hat fancies,
A look into the future

THE PORCELAIN SYNDROME

Thank you very much for your informative road test on the GL-1100 Interstate. I'm sure that the article is technically accurate, but the option list on page 53 looks incomplete. How much would a dealer charge to install a kitchen sink?

Joyce Posner
Pasadena, California

The rule for yachts applies. If you have to ask, you can't afford it—ed.

THE CRANK'S CASE

You guys are more interested in selling bikes than in proving the reliability and competency of the people who build them. I believe that the Japanese own your magazine and that they design their bikes with particular flaws to keep suckers like me coming back to the parts counter.

D. Eicher
Arrey, New Mexico

TWIN VISIONS

We must share the same vision. I opened the February issue and saw a picture of the Moto Guzzi V-40. I said to myself, "Damn, when is Honda going to do something like that with the CX500?"

I have a '76 400F with Kerkers, S&Ws—and a small Camber fairing, thanks to your March '79 Special Edition on fairings. I was just rereading that issue's editorial, when I came across, ". . . I believe that the vastly improved, lightened and powered-up CX500 of my vision isn't a fantasy. In fact, I'd like to believe that it's the future."

So would I.

Chuck Molloy
Newark, Delaware

ORDER PLEASE

Make that order three or nothing. Or if you've gotten a few more please, just include my order with the number of requests you already have for Yamaha 350 L/Cs.

Wade Dunham
Dartmouth, Nova Scotia, Canada

THE LAST HURRAH

Mr. Setright's Viewpoint piece in the February issue is a delightfully biased story with which I concur completely. I have owned a CBX for 17 months and find his observations to be true; I've been riding for 40 years and I still love The Machine. This CBX will be my last, though. God help me if it drops—I don't think I can pick it up.

Warner J. Banes Jr.
Houston, Texas

BROOKS BOOK REVIEW

While grateful for the editorial space you devoted to Brooks Leather Sportswear in the February Special Edition, I regret that your readers got the mistaken impression that our catalog, The Brooks Book, is available to everyone. This is not the case. As we sell our garments only through dealers, we make The Brooks Book available only to them. If your dealer doesn't have a Brooks Book for your review, please send us his name and address. We'll see that he gets one.

Steven Weiss
Brooks Leather Sportswear

Thanks for making things right. And to further that cause, the address is 14511 West 1 Mile Road, Oak Park, Michigan 48237—ed.

FLAMING THE FANS

I was amused by the February "cons" on Highway 61. They should have criticized the results (which were improvements), not the project itself. It is patently silly to say that improving on an H-D means that you're dead-down on Harley-Davidson. Your stated aim was to improve function. You succeeded to the point of interesting AMF/H-D and outraging some readers' sensibilities. Too bad that you didn't bring Highway 61 all the way up to present-day standards with fully adjustable suspension, a more rigid frame, better peg position and more muscle; that and provide less fork stiction, motor noise and vibration.

But how do you test for undying brand loyalty? Many owners are "going over," including law enforcement agencies—where reliability and function are the only deities. Funny how Pearl Harbor always seems to be the last-ditch defense against superiority of function. The Japanese have created more bike-related jobs here than Harley ever dreamed of.

I could buy another Sportster and relive the good ol' days—easily, since the bike has changed little except in price. My GS1000 is far too dull cosmetically for my taste, but it does everything well, so why switch? The Japanese manufacturers now offer crypto-chopper styling if you want it, but without in general sacrificing the standard bike's technical and design virtues. It's a free market and we've never been so well off.

Don Hilke
Milwaukee, Wisconsin

In regard to the letter written by J.A. Stege in your March issue, he is, as every Harley owner seems to be, ignorant of the fact that there are motorcycles above and beyond Harley capabilities. My Z1-R has a much smoother-running engine, an ungodly amount more power—and it looks a whole lot better, too. Now, what makes Harley owners think they have a motorcycle? In my opinion they own a relic of the past.

A.G. West
Los Angeles, California

My letter is in response to your last two issues, in which Harley riders and Japanese bike riders have gone at it with bare knuckles. Never being one to turn down a fight, I would like to get my two cents in.

As far as I'm concerned, there's nothing to fight about. One thing that makes or breaks a business is its ability to develop new products without getting complicated. For years on end Harley-Davidson has been manufacturing the same basic vee-twin powerplant. All things considered, it just doesn't match up to a well-designed Japanese four-stroker. Personally, I can't stand Harley's styling, vibration, noise or the handling.

So what's left? The image, and that's what has been selling Harleys for a long time. Why should that change? The paragraphs above explain that; but it doesn't matter to Harley, because every hunk of American metal that is put on the block will be snapped up by someone who's willing to pay $6000 to become a Macho-man, rather than riding a Japanese machine that qualifies as a motorcycle.

G. Larson
Niles, Illinois

SHOE FETISHIST

Why have the motorcycle companies seen fit to ruin the toes on my shoes and boots? Very few of the current models have a heel lever on the shifter. My old Honda 50 had it all over today's bikes as far as footwear is concerned.

Roy Smith
Victoria, Texas

Representatives from the Big Five have disavowed any knowledge of a conspiracy against your feet—ed.

HAT TRICKS

I tip my helmet to Ted West for putting into words my very feelings about the whole helmet issue. There are plenty of poor arguments against helmet use; however, I do feel that the right to decide is a valid argument against helmet *laws*. Normally, I prefer to wear my full-face helmet, not just for safety's sake but because I find it more comfortable to ride with it. I wish the government would use its time and money to educate the general motoring public about motorcycles, and if the officials still need something to do, they could maybe fix our nations's roads and highways. We used to get decent roads for our tax dollars (if nothing else), but now the government wastes our time and money fighting over stupid mandatory helmet laws—and gives us 85-mph speedometers so we'll be safe.

Maybe the answer is for the government to put up signs at every intersection that read, "Caution, Motorcycle Crossing." Or maybe they should put a little picture of a motorcycle on the dashboard of every new car to remind drivers to watch out for motorcyclists.

The fact is, those of us who value our lives and know the value of our helmets are going to

wear them, with or without a law that says that we must. The key, then, is education—for all users of the road.

John W. Nelson
Colchester, Connecticut

CAN'T TELL A DASH BY THE COVER

I'm writing this letter in reference to the January issue. I want to find out more information concerning the featured dashboard of the future, the one that's on the cover.

Is it going to be available to the public? Where can I write to get all of the facts? I would appreciate all the information that you could send me.

Jeff Smith
Mountlake, Terrace, Washington

If you can pry your eyes from the cover shot, you'll find all of the information on page 18 inside that issue—ed.

RETURN TO SENDER

Marvelous article on the Motoplast Laverda in the November issue, but you didn't include Rickey Racers' address.

Nathan Centers
Augusta, Georgia

Sorry. You can contact RR at 755 West 17th Street, Costa Mesa, California 92627—ed.

(SIC)

Your January issue of the future was interesting to me. I don't agree with some of the statements made by the manufacturers some I do. Anything is possible motorcycles will and can now compete with a car, now. The only problem is that engineers are not dreamers and dreamers are the inventors. As more is invented, engineers follow and perfect on the idea.

That leads me back to what I really want to talk about. How can a dreamer, like myself, get manufacturers to look and listen and maby pay for an idea. I'am a dreamer, not a lawer, and lack the motovation to go through the hassle of pattints, lawyers, and all that mombo jombo. Is their a honest manufacturer? one that will pay for what they use and nothing more. Money seems to make men greedy and think of themselves as powerful. I don't want much, just a better living.

The manufacturers seem to be struggling with convention. What I mean is this, a motorcycle has to be and look a certain way. This in itself restricts ideas, altho not entirley. The uni-track, that Kawasaki has just released, is good but can be alot better. I have a better; They also say that cars are dominite. But with an attude like that no wonder. You want to put cars on the roaps I have a design to do just that. You point out that thing the British built, to be advanced. That's where I was ten years ago. If only one person out their will back me, I will advance motorcycles beyond convention, to where they belong, king.

A few things I have *now* are, a two stroke engin that needs no oil in the gass, with out loss of power and will weigh slightley more. A four stroke engin with no valve float and will work beautifully with Honda's ovil pistons, how about a two stroke ovil piston racer with a little modification. And what I call America's macheen, a 90 M.P.H. 120 M.P.G. motorcycle ore one that will humble any motorcycle of today at nearly anything.

These are dreams now, of solid ideas put together, that's what they call invention. Not a head trip, not ravings of a know nothing, but real. You had better lisen well, or you will be left behind, fumbling with convention.

And by chance you read this and are interested you can contact Cycle Guide for my address and ideas.

P.S. Cycle Guide please print this it's all true. This is the only way I can see to do what I want to do, with the funds I have to do with. Please don't print my address it may caust me my life.

Name and address withheld at author's request—ed.

RECOGNITION SIGNAL

I have been reading motorcycle magazines since 1966, and not once have I heard mention of black racers, tuners or even that black people ride bikes. Guess what; we ride and we read magazines like yours. But most of all we buy these magazines. So how about a little recognition?

Gary Stephenson
Port Jefferson, New York

NO REALTY

About the March issue, page 58. In that Yamaha 400 Minitest is the Great Dain in the midst of a farm purchase, or is he just camerashy?

Wilbur Stiction
Horrendousburg, Alabama

Neither. He just likes exposing his drain plug. Who is this, really? •

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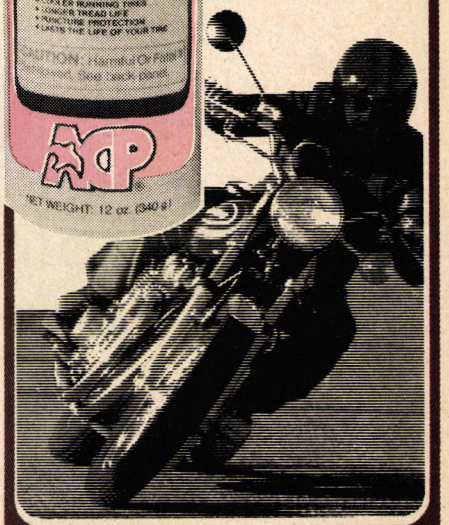

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Fact Or Friction

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• Friction is one of God's most fickle creations. In a clutch or a brake or between tire and road, friction is beneficial. But just about everywhere else on a motorcycle, friction is The Enemy. It's what causes things to wear out, to usurp power and to be more complicated than they would be otherwise.

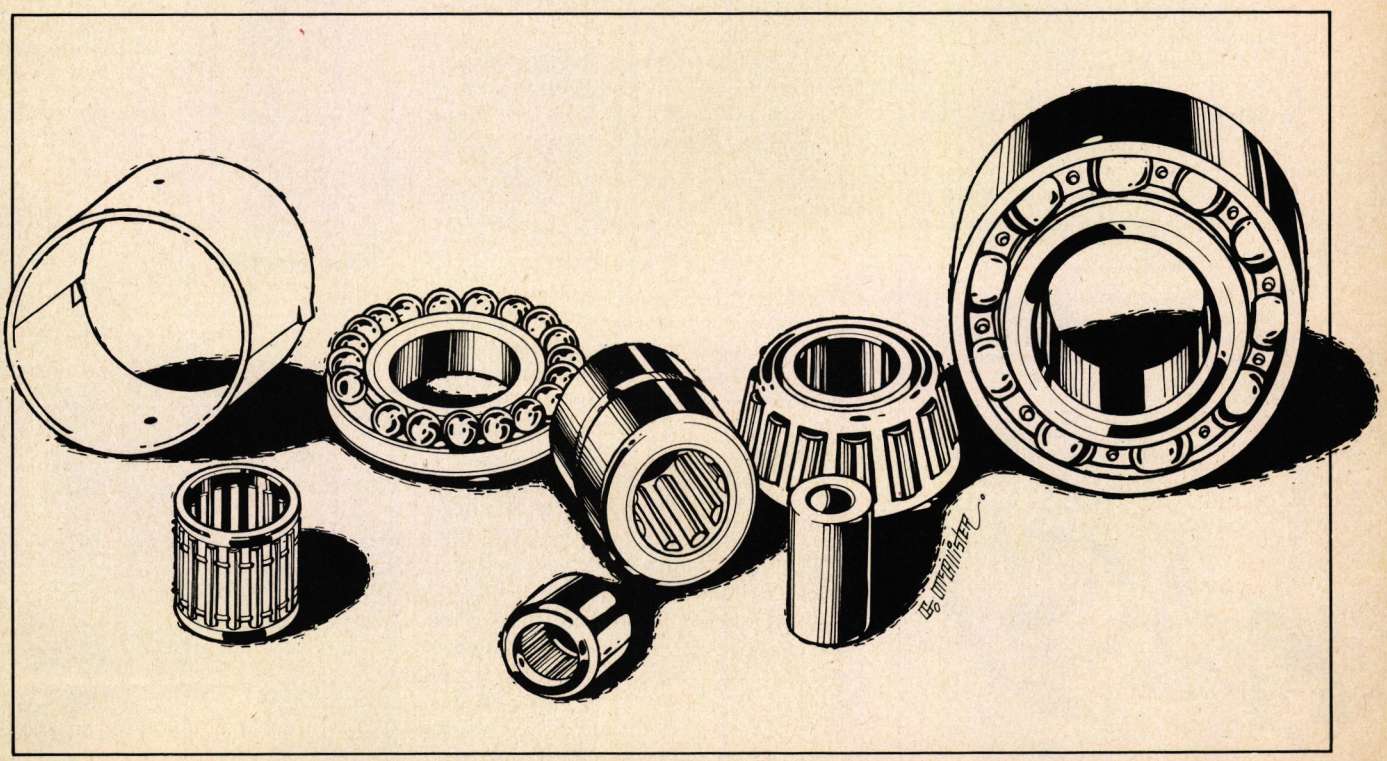
Friction manifests itself in many forms, but the one that motorcycle designers confront most often is when working with components that rotate—cranks, cams, gears, shafts, wheels and such. And to overcome the problems of rotational friction, these engineers use bearings, which are simplistic devices that help a rotating component spin more freely by reducing friction to an acceptably low level.

There are, of course, hundreds of different types of bearings, each one designed to solve a specific kind of friction-related problem. A motorcycle, however, relies on only about eight basic types of bearings to insure that its moving parts will keep moving. Of these eight, plain bushings are by far the simplest. They have no moving parts, but serve their purpose through a durable, replaceable surface on which something can slide or spin. Their main advantages are that they're economical to make and they take up very little space. Their disadvantages, however, stem from that same element of simplicity. With little in their design actually to reduce friction, bushings in high-rpm, high-load applications must rely on a copious supply of oil to prevent metal-to-metal contact between the two interacting surfaces, much as a snow ski relies on wax to ease its passage. That's why bushings normally are used only where there is an abundance of oil or, failing that, when the moving part only oscillates instead of revolving, such as a swingarm pivot or a con-rod wrist-pin bushing.

No less dependent on oil is the split insert bearing. Just like the bushing, the split insert has no moving parts and provides a replaceable, long-wearing surface to bear the load and separate one friction surface from another. The split insert is made in two halves to facilitate its installation on a component that will not accept a full-circle bearing. The counterweights on a one-piece crankshaft, for example, are much larger than the journals around which the main and rod bearings must fit. So a split-insert bearing must be used in conjunction with a two-piece connecting rod or a detachable main bearing cap. Like a bushing, a split insert is simple, but it also requires a steady supply of clean, high-pressure oil and is sensitive to any contamination in its lubricant.

Far less sensitive to either the quantity or cleanliness of the oil are rolling-element bearings. These are more complex than plain bearings in that they use spherical or cylindrical rollers to separate the two moving parts, much like substituting a wheel for the aforementioned ski. Because its elements roll rather than slide, this kind of bearing is less dependent on an abundance of clean oil than is a plain bearing, yet it operates with less friction. The simplest type of rolling-element bearing is the plain ball-type bearing in which as many loose balls as possible are sandwiched between two hard-surfaced troughs called races. Plain ball bearings are available in several configurations, but they're generally not suited for precision high-speed work; so in motorcycling, their use is limited to the bearings in the steering head or, occasionally, to those in a roller wheel that controls drive-chain tension.

Considerably more common—but also more complex—are caged ball bearings. They are similar in principle to plain ball bearings but use fewer balls that are held an equal distance apart by a special cage. The cage usually is stamped steel, but it also can be machined from solid steel or formed in plastic. And unlike some types of plain ball bearings, caged balls accept only radial



loads, not those which act axially. These bearings can have high load ratings and are generally found supporting crankshafts, gearshafts and wheels.

Similar cage arrangements are used to separate the elements in roller-type bearings. These are much like the ball types but instead use cylindrical elements that don't require grooved races, and therefore sometimes utilize the shaft they support as an inner race. Because the long rollers have a greater surface area in contact with the rotating surfaces, roller bearings can have very high load ratings. They can be found throughout many motorcycles, functioning as main bearings, as big-end rod bearings and as gearbox bearings.

Another form of caged roller bearing is the tapered roller. It looks similar to a regular caged roller bearing, but its rolling elements are slightly tapered and ride in conical-shaped races. Their design gives them the capability of handling both radial and axial loads; and so, like some plain roller bearings, they are used in places where shaft end-play must be either eliminated or minimized (steering head bearings, swingarm pivots, shaft-drive gear cases).

Tapered roller bearings can consume a fair amount of room, but that is not the case with needle-type roller bearings. Using very long, thin rolling elements crowded together with no cage to separate them, the needle bearing, like the regular roller, can use its shaft as an inner race. And because of its compactness, it can be used where space is at a premium. So a needle bearing offers a more-efficient alternative to a plain bushing in a gearbox case, for instance, where the amount of available room between gear shafts can limit the diameter of the bearings.

Space also is a problem around the piston's wrist pin. Plain bushings commonly are used there for that reason, but so is a caged type of needle bearing, especially on two-strokes, which get lubrication only through oil mist. Using the piston pin and the con-rod's small-end bore as races, the caged needle bearing consists solely of a precision metal cage and a series of needle-like rollers.

In the end, of course, the success of any of these bearings is heavily dependent on lubrication. Bathed in a constant flow of clean oil, even the most primitive of bearings—or no bearing at all, for that matter—would outlive a highly sophisticated bearing that was given no lubrication whatsoever.

Ironic as it may seem, then, the most effective friction-defeating device of all is not the bearing itself, but the oil supplied to it. And anyone who doubts that can get all the proof he'll need simply by going for a ride after emptying his bike's oil supply. After a very few miles, he'll be a believer, too.

—David Dewhurst

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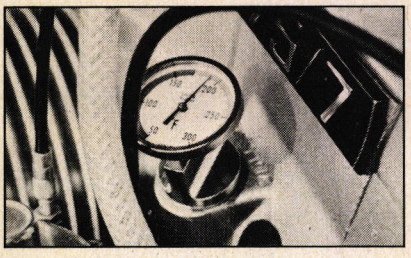
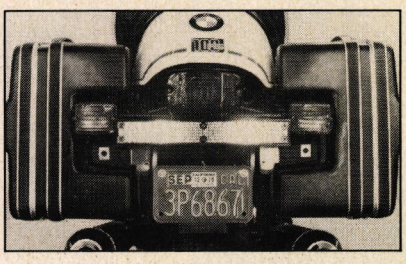
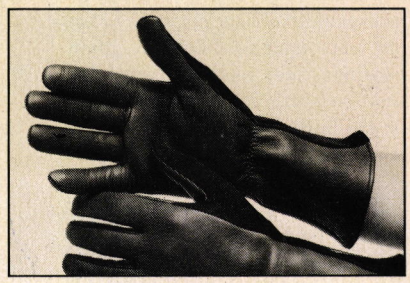
En-gauge-ing Device: This oil-temperature gauge/dipstick from Loving Products is designed to keep you informed of your motorcycle's oil temperature. The manufacturer says it replaces the stock dipstick and does not use electrical connections or remote gauges. The gauge is made of stainless steel; it has a glass-faced scale calibrated from 50–300° F and is claimed to be weather- and vibration-resistant. This product was designed originally for BMW motorcycles but now is available for several Honda models. It sells for $34.95, but add $2.00 for postage and handling. For more information you can contact Loving Products directly at 118 West Armijo, Dept. CG, Monrovia, California 91016.

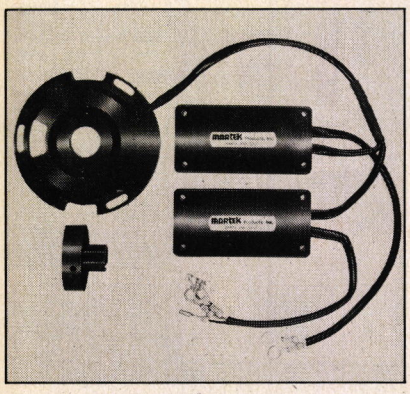




Safety Braking: If you're not fond of treadmarks up your back, you might put your hands on the Voevodsky Cyberlite. It's a solid-state computer-driven deceleration-warning system designed to make motorcyclists more visible to following traffic. The manufacturer says the Cyberlite works in conjunction with the standard brake light, featuring six flashing rates: gentle braking (slow flash) to hard braking (rapid flash). The Cyberlite comes with a six-month warranty on parts and labor (except light bulbs) and an unconditional 90-day, money-back guarantee. For more information contact Voevodsky Cyberlite, 770 Welch Road, Suite 154, Dept. CG, Palo Alto, California 94304. Or call (415) 854-1242.

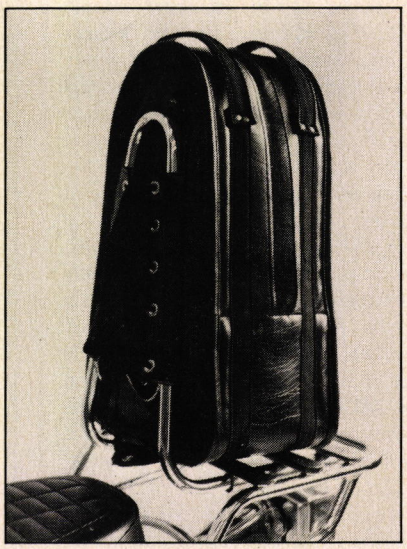
Deerskin Gloves: For those of you with two hands BCW is offering the Thurlow deerskin glove in two models: 581, unlined, and 581-TL with a thermal lining. Both gloves come in black or dark brown and feature a four-inch gauntlet and a seamless palm and back. A strip of chamois runs from the gauntlet to the end of the thumb for visor-wiping in fog or mist. The Thurlow glove is available in sizes Extra-small through Extra-large and can be ordered by mail if an accurate hand tracing is included with the order. To get your hands in a pair, contact BCW at 385 Eighth Street, Dept. CG, San Francisco, California 94103. The toll-free phone number is (800) 227-3670.



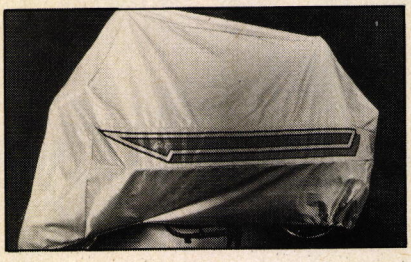


Martek Ignition: Martek Products has introduced an electronic ignition for all points-equipped, air-cooled Honda, Kawasaki and Suzuki fours. Martek says the 440-Z was developed to meet the demands of high-performance motorcycle engines, especially modified and turbocharged engines. The 440-Z uses the optical timing control similar to that used in other 440 models by Martek and it eliminates the breaker points. This electronic ignition system is equipped with a separate amplifier module for each coil. Martek says the modules are compact and easily attached to any bike. Suggested retail price for the 440-Z is $159.95. For more information contact Martek at 3609 West MacArthur Blvd., Dept. CG, Santa Ana, California 92704. Or you can call (714) 751-7901.

Leather Lather: Hide Bath is not a game kids play on Saturday night, but a product you might look for if your leathers have been looking a bit tatty lately. The manufacturer says a synthetic emulsifier in Hide Bath cleans the leather by chemical action, while its other ingredient, coconut oil, permeates the pores in the leather to make it pliable and resilient. Hide Bath comes in 14-ounce, spray-top containers from Valley Cycle Specialties, 2060 York Road, Dept. CG, Timonium, Maryland 21093. The phone number is (301) 252-6380.

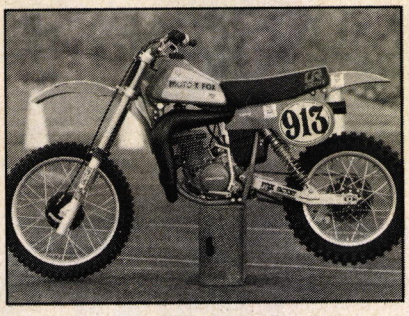


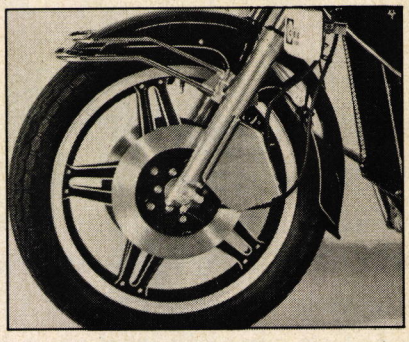
Store-It-All: If you touring enthusiasts have ever longed for one more storage area on your motorcycle, you might find Beck/Arnley's Commercial Sewing Carry-All a handy hideaway. It comes with adjustable canvas webbing for installation on most sissy-bars and is made of vinyl. Top-mounted carrying handles allow you to tote the bag to and from your bike. For more information and how-to-order instructions write to the Beck/Arnley Corporation at 548 Broadhollow Road, Dept. CG, Melville, Long Island, New York 11746.



Gotcha Covered: If spring weather has been less than kind to your motorcycle and you're tired of scraping pavement pucky from your bike when you haven't even been anywhere, you might find a Ga-Zee-Bo motorcycle cover a good investment. The cover is made of woven polyester that has been coated with urethane. An inner layer of aluminized fabric is designed to protect the cover from your bike's hot motor or pipes. The Ga-Zee-Bo comes with its own carrying case and features grommets for locking. For more information contact the Tex-All Company, Inc., 14001 North McKinley Road, Dept. CG, Montrose, Michigan 48457. Or you can cover yourself toll-free by calling (800) 521-7916.

Fox Factory Suspension: Moto-X Fox is offering Fox Factory Suspension components, built to perform like factory works motocrossers. The forks come with 44mm tubes, forged sliders and triple clamps, and can be ordered with a variety of optional springs providing travel of 11–13 inches. Fox Factory Shocks can be had with remote or piggyback reservoirs and feature adjustable compression and rebound damping. For more information, or to obtain Moto-X Fox's $3.00 catalog, write to 520 McGlincy Lane, Dept. CG, Campbell, California 95008. If the post will keep you in too much suspense, call (408) 371-1221.



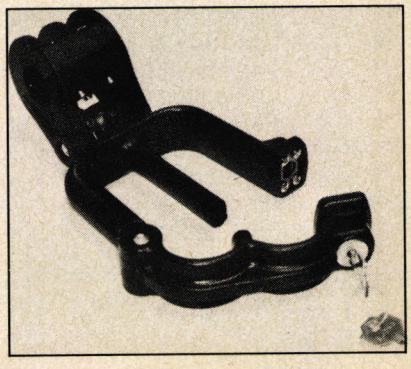


Fender Friend: New from Custom Dressers is its chrome, dual-rail front fender guard for Honda's GL-1100 stock front fender. The folks at Custom Dressers say the fender guard is easy to install and that it offers protection as well as flash to your bike. The unlighted model, pictured, costs $59.95, but if you want to see where your fender's going you'll have to part with $119.95. For more information and ordering instructions contact Custom Dressers at 6421 Cox Avenue, Dept. CG, Oklahoma City, Oklahoma 73149. If you'd rather call, the number is (405) 672-7564.

DG's Tee: Gold Wing enthusiasts should like this long-sleeve T-shirt from DG Performance Specialties. It is made of polyester and cotton, and displays Honda's GL-1000 Gold Wing logo in a three-color transfer. The shirt is available in white or red, in men's sizes Small through Extra-Large. The price for the shirt is $11.50, and you can find it at most motorcycle and accessory stores that carry DG products. You can contact DG directly at 1170 Van Horne Road, Dept. CG, Anaheim, California 92806. Or call (714) 630-5471.

Foul-Weather Fashion: Fitch/Wyckoff International is marketing Hein Gericke leathers from Germany. The jacket includes padding at the kidneys, elbows and shoulders, as well as an adjustable kidney belt, mandarin collar and a hidden zipper that connects the jacket to the matching pants. The pants are lined and are padded at the hips and knees. Both pieces are available in solid colors or in two-tone, in most men's and women's sizes. For ordering information contact Fitch/Wyckoff International, Inc., 305 North Harbor, Suite C-8, Dept. CG, Fullerton, California 92632. Or call (714) 738-6262.

Lock Jaws: Now that you've spent a bundle of money to protect your head, you should be concerned with protecting your helmet. Since it can be risky to leave your lid dangling by its D-ring from your bike's helmet lock, and toting it around all day can be cumbersome, you might try the CycleTogs HelmetLock. It locks one or two full-coverage helmets to your bike by encircling the face guard in key-locking jaws. The HelmetLock is finished in flat-black, and CycleTogs says you can mount it to any 13mm, 16mm, 19mm or 22mm frame tube. A bushing set is supplied to fit these sizes, and the lock comes with mounting hardware and two keys for the pin-tumbler locking mechanism. HelmetLock costs $19.95; you can secure yours by contacting CycleTogs International, P.O. Box 19414, Dept. CG, Portland, Oregon 97219. ●



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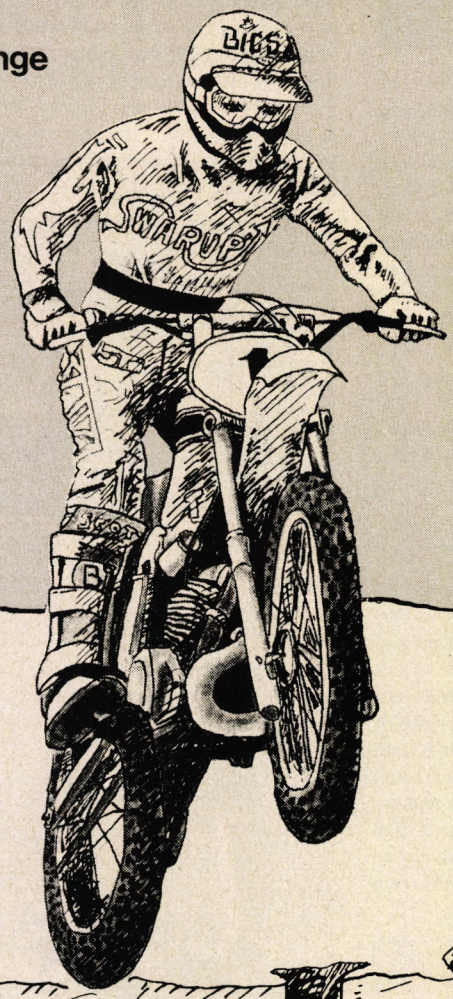

It's Here! A static swirl mixer which fits in the intake manifold of your motorcycle or automobile. With its unique arrangement of guiding fins, the SWARUP rotates the air-fuel mixture in different directions to form complex swirls of vaporized gas particles which whirl towards the center of the manifold.

NEW! from Tokyo

SWARUP®

Single Carb	$28.95
Twin Carb	$38.95
Triple Carb	$58.95
Four Carb	$68.95
Six Carb	$88.95

SWARUP—A proven Japanese product, based on computer science technology, will add 10-20% to your fuel power! Custom designed for every type of internal combustion engine, the SWARUP is guaranteed to increase power while simultaneously decreasing fuel consumption. Not only does it work to atomize gas particles, but it creates a turbulence in the intake manifold which produces a more efficient burning compound for your engine. This means greater fuel economy, increased power . . . and increased torque for you!

World Wide Patent Pending
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SEKON

SEKON INTERNATIONAL

SEKON INT'L CORP. OF AMERICA
2210 Wilshire Blvd. Suite 577 CG
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Do you know that while a smooth bore carburetor and the SWARUP both increase the power of your bike, a smooth bore carburetor increases fuel consumption and the SWARUP decreases it?

Do you know that while using the Swarup, if you step up the main jet as a smooth bore carburetor does, not only will you have more power than a smooth bore carburetor, but you still will be consuming the same fuel as the stock carb?

Do you know that the smooth bore carburetor costs nearly $300 for a four cylinder motorcycle, while the SWARUP is less than one quarter of the price? You figure it out.

Do you know that we are selling more SWARUPs than smooth bore carburetors in the Japanese after market? (By the way, you are aware of who makes the bikes?)

We do not disagree with the function of a smooth bore carburetor, we've just found a better and easier way!

A Glimpse of the Future

SWARUP®

We Challenge Smooth Bore Carburetors for Power!

The SWARUP is the best cost-performance device on the market today and is the only device which is capable of burning a wide range of air-fuel mixture in your engine. This gives you a wider play between power and fuel consumption!

By simple installation of the SWARUP, you get an increase of more than 10% in power with better fuel economy. A further increase in power can be made by stepping up the main jet. If you step down the main jet, a leaner air-fuel mixture for better fuel economy can be obtained while maintaining stock power. Again, the SWARUP is the only device to give you this wide range burning.

When you install a high cam shaft, a big bore, or a low resistant air-filter, usually you will have a hard time getting a good setting of your carburetor. Because of the excellent performance of SWARUP, a smooth setting will be very simple, even if you are not a professional in installing high performance products.

Finally, the E.P.A. standard for all 1980 models will decrease their performance. The SWARUP can burn an even leaner air-fuel mixture than that required standard. That means that it can increase the performance for the latest and future models or even any racer that you build. The SWARUP — A Glimpse of the Future!

Single Carb	$28.95
Twin Carb	$38.95
Triple Carb	$58.95
Four Carb	$68.95
Six Carb	$88.95

"SEKON, Second to None!"

SEKON

West's Side

Profiling with the Highway Patrol

Cop bikes, jackboots and silver bullets

• They arrived on KZ1000 Police Specials. They looked reeeal goooooood. Chrome-lens aviator glasses. Silk ascots. Tight grins.

There were three of them. They unstrapped their ear-high skimmers and walked to the door of the bar, their heavy boots clunking on the pavement like the *Wehrmacht* at a disco.

And, to my surprise, everyone in the bar just groaned.

Everyone, that is, except one guy. He was drunk. Before the three got to the door, he looked at them through crimson, beer-bursted eyes. "Tha's the guy," he said, "Swear tuh God. Didn't actual gimme the ticket himself—but he held me till the one in the car gimme it."

The skinny guy at the end of the bar shook his head with a derisive snort. "If they was real cops, Billy, they'da seen my bike don't have no registration on it."

I looked out the window to the street, confused. There, next to the three Police Specials, sat an old Honda that looked half destroyed. Its front fender was bent sideways at an unruly angle, like a cowlick. Its seat looked like one of the big losers at the Battle of Midway.

The drunk turned back to his hangover. "Tha's him, I tell yuh."

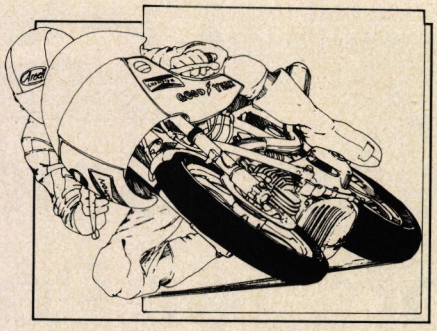
I was still confused.

I mean, they looked real enough all right. Heavy twill blue-black jodhpur pants. Jackboots. Black leather shortie jackets. Enough silver bullets to storm a castle of werewolves. And if they weren't real cops, then why in hell were they wearing those dumb little fiberglass fox-hunting helmets? Nobody but a cop would think he was safe in one of those things.

They came into the bar, sat down at a table, ordered three draft Coors, and I felt the world begin to tilt.

What was this! In New York, sure. Nobody's shocked if a cop in uniform takes a drink in the Big Apple. But this was L.A., land of the Ethical Deep Tan. In L.A., corruption is something that happens in the bottom of your radiator core. Too curious, too fascinated to black-out, I sat on the stool of this little burger-and-beer dispensary near Pt. Fermin, the western tip of the Known World, and savored . . . Mystery.

The three of them sat in a tight circle sipping their Coors and the more glances I sneaked at them, the more unmistakable it was. They had that look, the look you probably saw for the first time about a month after you got your license and "forgot" to



make a proper hand-signal. The look of an easy bust. Law N'Order. They stunk of it.

Yet something was terribly wrong.

I looked at their bikes again, thinking it might explain things. It didn't. The bikes were perfect. They had heavily valanced fenders and big, flat foot-boards (for, of course, flat feet). Short, wide one-ass saddles. The rear fenders were fully-arced items with flared trailing edges. They had utility boxes mounted on top of them and huge saddlebags on either side. They looked like some Samurai version of a 1952 BMW R51. Who else but a cop would turn a beautiful Z-1 into such a dour old half-track? (Answer: someone who wants to look like The Authorities.)

It got me to thinking. See, there's something special about a cop on a bike.

Sure, we've all seen the picture of the San Diego motor cop bending over while his partner inspects the tear in the ass of his pants. Yeah, he fell on the freeway. Yeah, he got pantsed. Funnier'n hell. And it's just about the only light-hearted moment I can ever remember associated with motorcycle cops. Otherwise, they're all impenetrable sunglasses and weird little helmets, huge pistols sticking off their hips. Most of all, they're Authority. It's understandable. What could be more impressive than a cop—presumably a *tough* cop, since we're talking images here—riding a big bike, with a big pistol on his belt, and a Big Mission on his mind! Compared to an image like that, the sweet guys riding around in patrol cars look like a U.N. Peace-Keeping Mission.

And yet, think about it for a second. I'll bet you a hundred sticks of Big Red that if you took off the motor cop's helmet and leather jacket and jodhpurs, lined him up in stocking feet and long-johns with all the rest, you couldn't *begin* to tell the biker from the U.N. Peace-Keepers. In other words, it's all in the uniform. And the bikes wear a uniform, too.

And I find that strange. I find it particularly strange when you consider what goes into dressing a motorcycle in a uniform to turn it into a Cop Bike. Why the floorboards, instead of pegs? Why the 1931 John Deere saddles? Why the old-style longhorn bars? Why go to all this trouble to make a Kawasaki Z-1 look like a Hawg?

Because we're talking images here, that's why. Hawg images. Serious "Lawnforcement" images that took years to build.

And that's when it struck me, how ironic, how absolutely laughable the whole thing is. I mean, we all know—at least, secretly—that the reason we like bikes is partly connected with the image they project. Just riding a bike at all in this automobile-choked world is image enough for a lot of us. It's a way of saying we like to be different, and we don't much care who knows it. For some of us, even that isn't enough. When you see a guy slow to 20 mph for a school zone all hunkered down behind clip-ons and a bikini fairing, his feet strung out a mile behind him on the rear pegs, you smell a rat. When you see a guy in a suit on Tuesday morning at a quarter of nine riding a chopper to work, the rat starts to grin. But that's all okay. It proves the same old thing—that as surely as a bike is "a way of getting there," just as surely it is a statement, an image for the rider.

The irony that struck me, though, is that of all bikes, none is more purely Image For The Sake Of Image than the All-American Get-Patty-Hearst Copsikkel. And sitting in this little bar at the tip of Pt. Fermin, it was so obvious, so blatant, that it was almost embarrassing. To think that after all these years of sneaking sidelong, intimidated glances at motorcycle cops, I'd never realized I was being conned! It was incredible! I'd gone for it, hook, line and sinker.

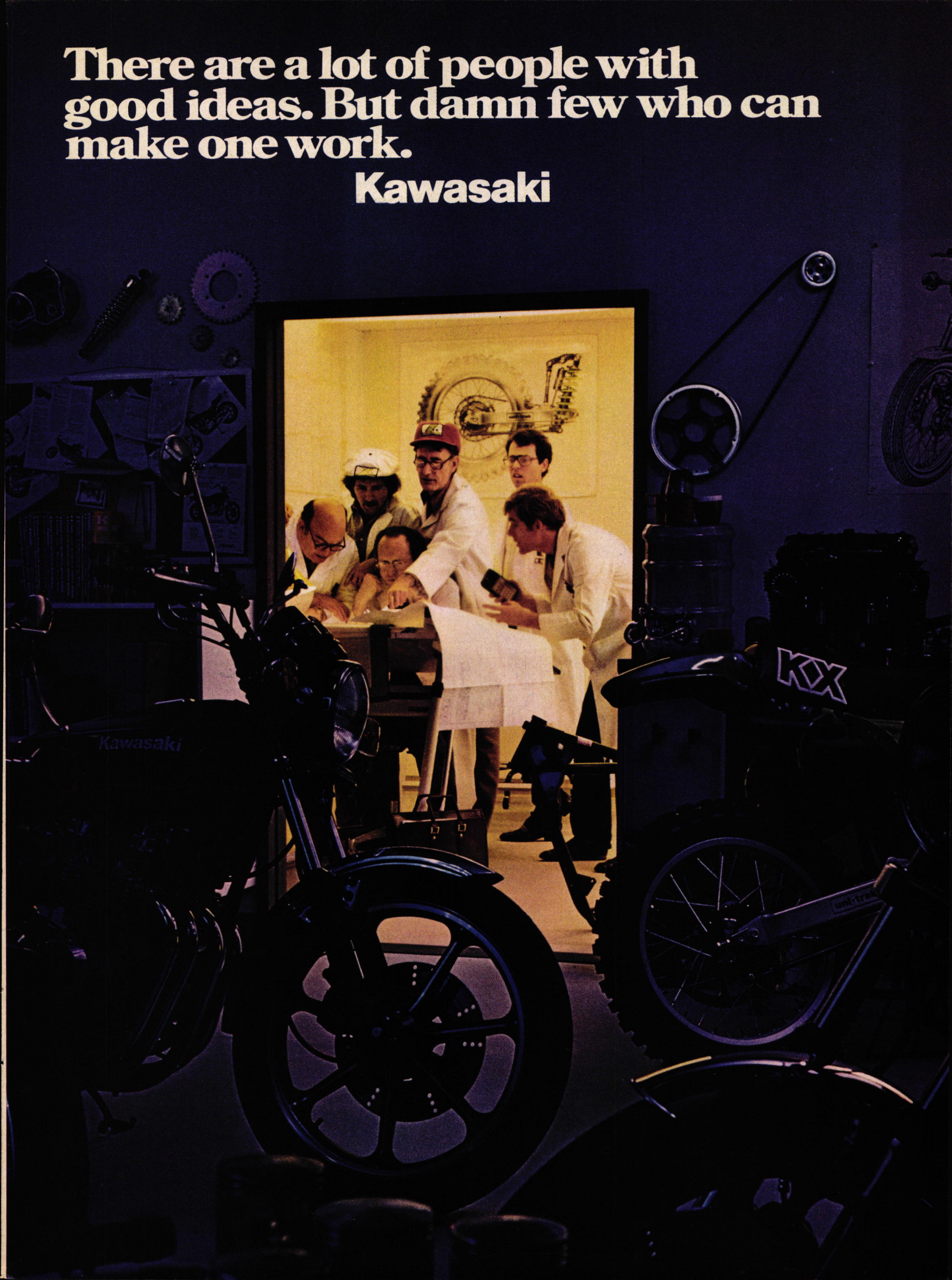
By now, I simply had to know what was going on. So I asked. Sure enough, they weren't cops at all. They were actors. They'd been involved in shooting a scene for "CHiPs" this afternoon.

I sat back down at last, my curiosity satisfied. And gradually, it began to sink in. I couldn't help but grin. It had been wonderful, just for once, to see three glow-in-the-dark Sickle Kop Images ride up and an entire bar-full of people only groan and go back to their conversations. Wonderful. And now, looking out at those three Keystone Kop repli-bikes at the curb, I knew *why* it had been wonderful! They can't con me. Those guys have the most serious profile act going.

—Ted West

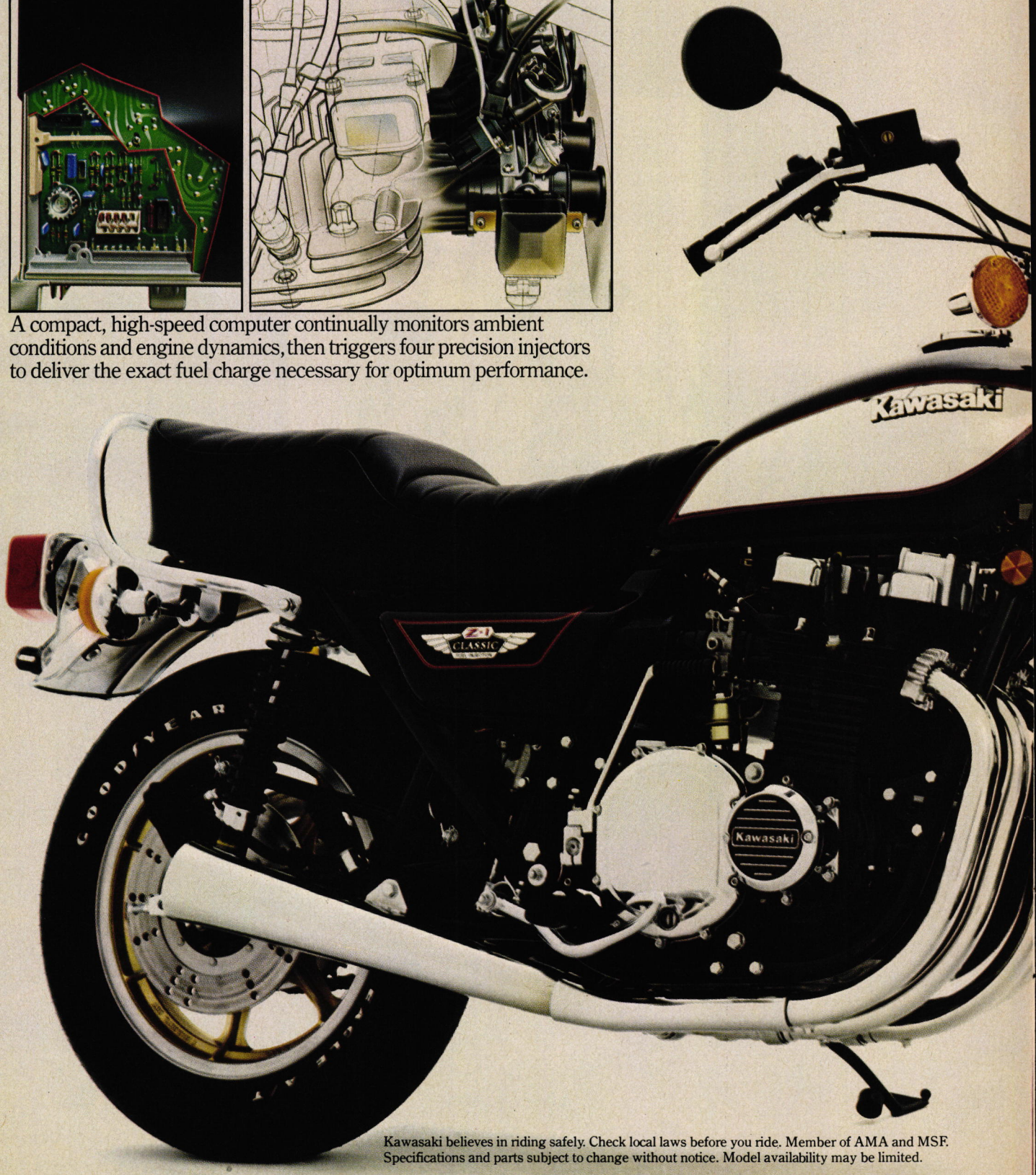
There are a lot of people with good ideas. But damn few who can make one work.

Kawasaki



Electronic Fuel Injection was always a good idea. Making it work was an even better one.

A compact, high-speed computer continually monitors ambient conditions and engine dynamics, then triggers four precision injectors to deliver the exact fuel charge necessary for optimum performance.



Kawasaki believes in riding safely. Check local laws before you ride. Member of AMA and MSF. Specifications and parts subject to change without notice. Model availability may be limited.

At Kawasaki, Electronic Fuel Injection is more than idle thinking. We've put a brain behind it. A compact high-speed computer that fine tunes the fuel mixture to meet engine demands. At start-up, an engine needs a high ratio of fuel to air; that ratio changes as you accelerate, when cruising, again when idling. In all cases, the Z-1 Classic is the only motorcycle to meet those demands with the precision of solid state, electronic microcircuitry.

Nothing is left to chance. Electronic sensors continually monitor engine rpm, throttle position, air flow, and engine and air temperatures. Instantly, the computer processes this data, and triggers the injectors to deliver the precise fuel mixture required for efficiency, but most of all, performance. That's the legacy of the Z-1. The bike that *Motorcyclist Magazine* named the "Most Significant" and "Most Desirable" motorcycle of the decade.

Z-1 CLASSIC FUEL INJECTION LIMITED EDITION

The Z-1 Classic Limited Edition is even more desirable; with automatic cam chain tensioner, transistorized breakerless ignition, our exclusive Clean Air System. And more.

If you've got a mind for details, ask your Kawasaki dealer about the motorcycle with a mind. The Z-1 Classic Limited Edition. The world's only motorcycle with Electronic Fuel Injection as standard equipment.

Kawasaki

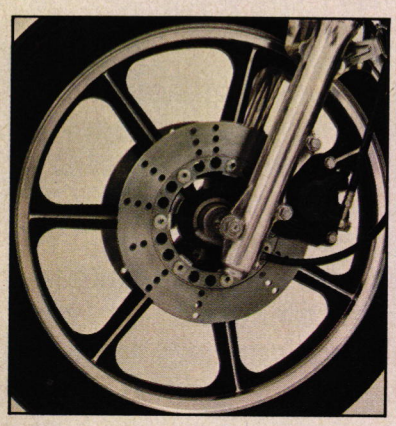
Don't let the good times pass you by.

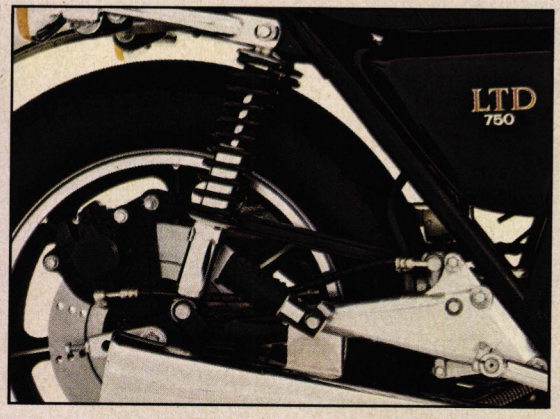
Gold cast alloy wheels and chrome plated fuel tank are distinctive signatures of the limited edition Z-1 Classic.

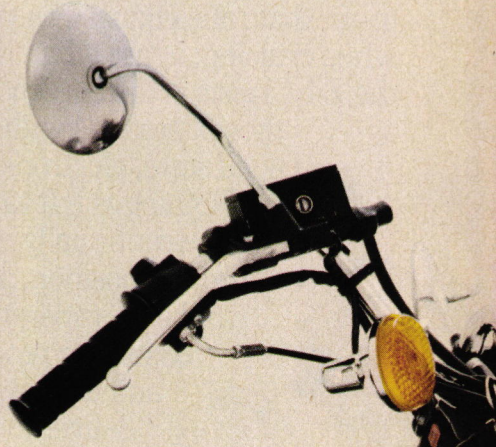
Triple drilled discs with sintered metallic pads for smooth, powerful braking.

Getting a handle on a good idea is one thing. Getting a good idea to handle is another.

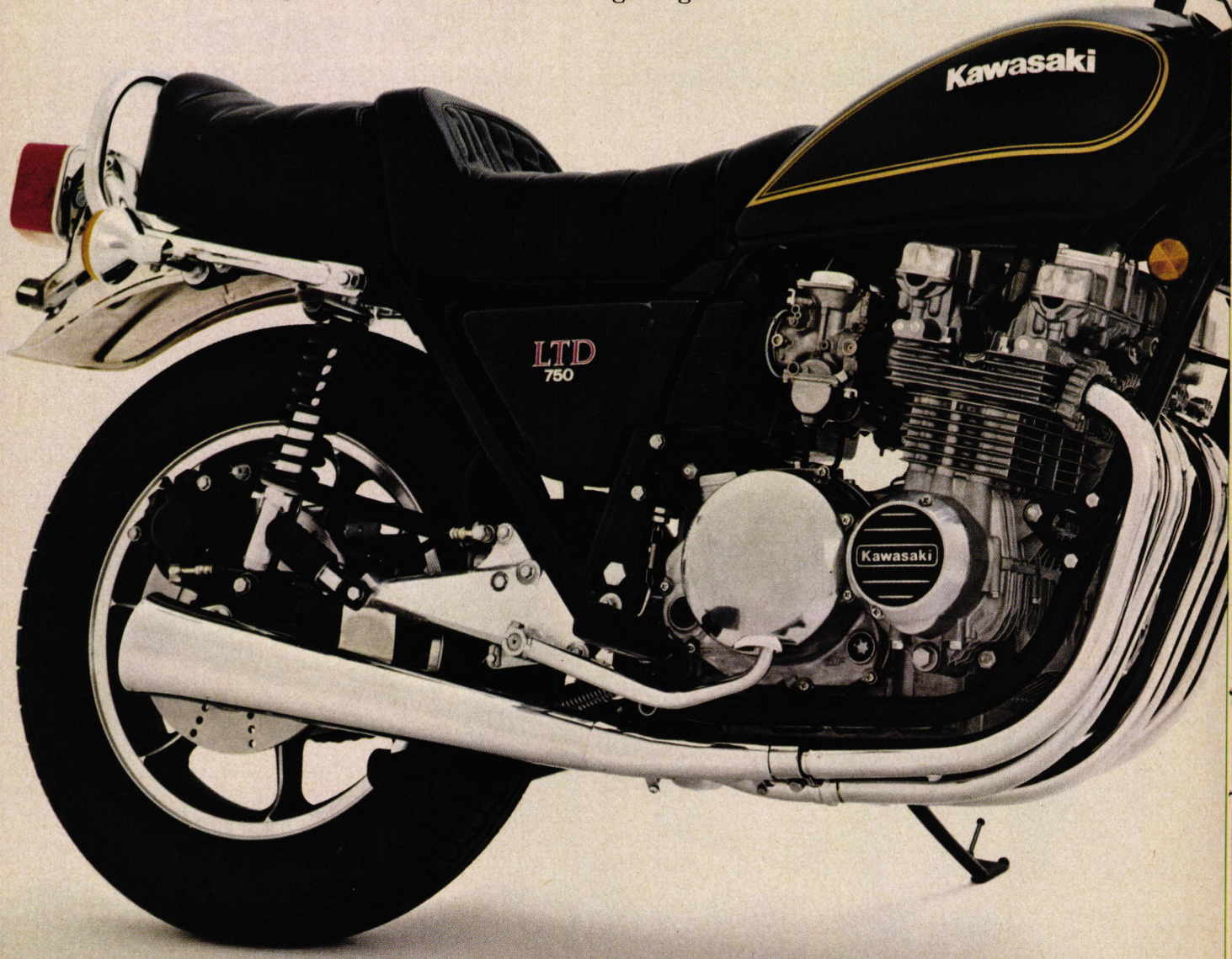
Introducing The KZ750/4 LTD.







The most advanced suspension in its class: air-adjustable leading axle forks, 20-way adjustable rear shocks and reinforced needle bearing swingarm.



Kawasaki believes in riding safely. Check local laws before you ride. Member of AMA and MSF.
Specifications and parts subject to change without notice. Model availability may be limited.

American Sports Styling. A good idea, sure. Dress'em up. But can you take them anywhere? Face it, there are times when even the best rider wishes his style-bike were a road racer. Like when the road gets a little too tough to handle. A bank too steep. A curve too tricky. But now going in style is something everyone can handle.

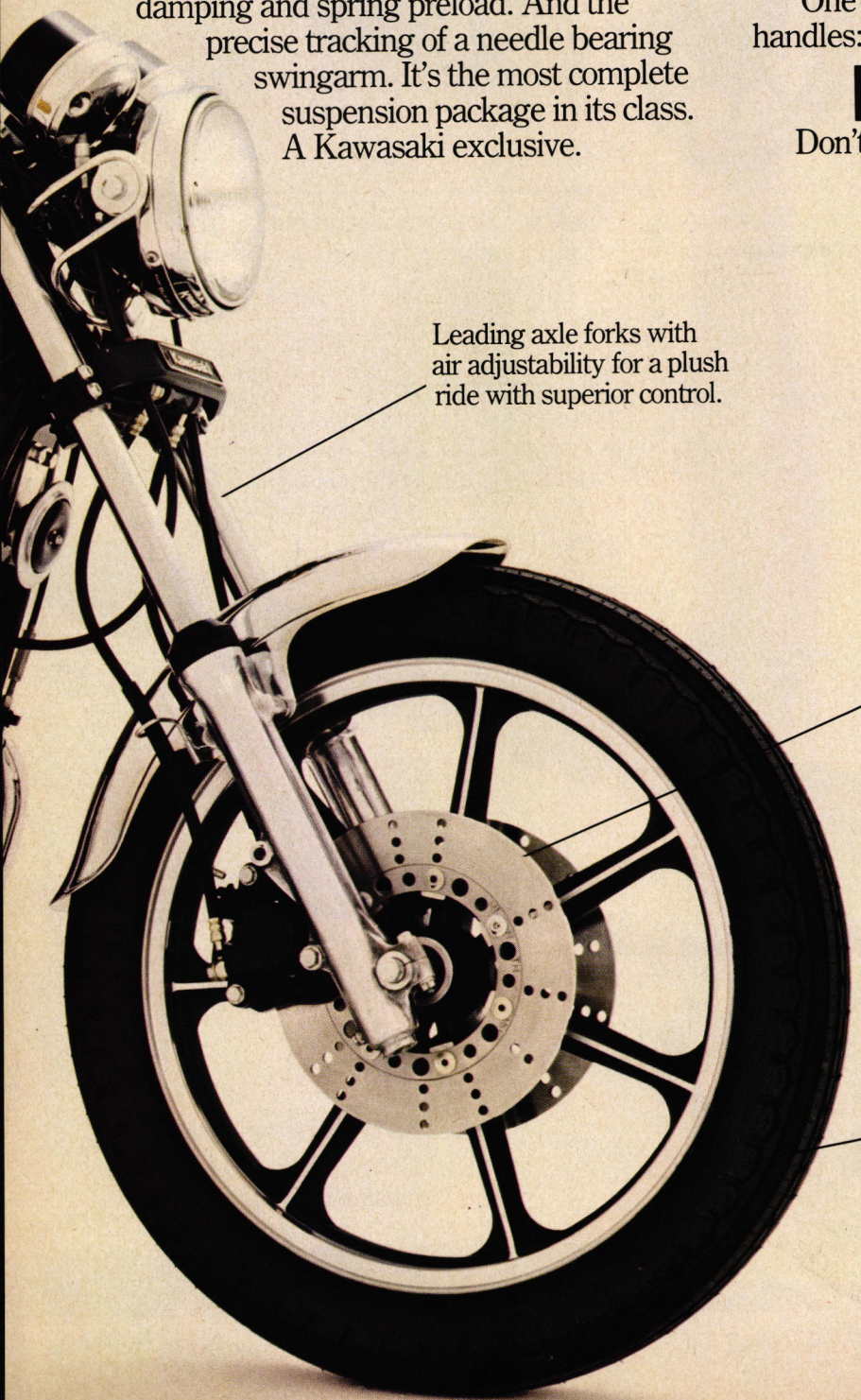
Enter the KZ750/4 LTD. A machine that caters to your every whim. With a super-sophisticated suspension system that puts you in control. Air-adjustable leading axle front forks. Plus, rear shocks you can fine tune for damping and spring preload. And the precise tracking of a needle bearing swingarm. It's the most complete suspension package in its class. A Kawasaki exclusive.

A word about what you'll be handling. A larger displacement version of the legendary double overhead cam engine that holds world records for speed and endurance. There's more. The KZ750/4 LTD boasts more standard features than any other bike in its class. A quartz halogen headlight, pullback handlebars, cast alloy wheels (16" in back), tubeless tires, two piece stepped seat, maintenance-free transistorized breakerless ignition, constant velocity 34mm Keihin carbs, even Kawasaki's exclusive Clean Air System.

One other nice thing about the bike that handles: You can handle the price, too.

Kawasaki

Don't let the good times pass you by.



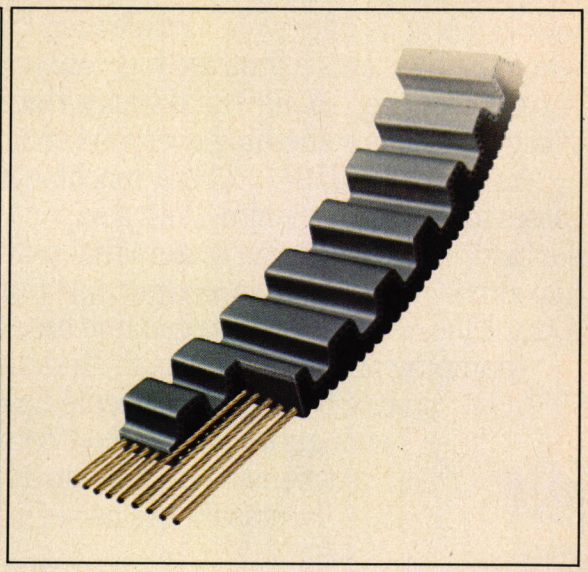
Leading axle forks with air adjustability for a plush ride with superior control.

Triple drilled discs with sintered metallic pads for smooth, powerful braking.

Performance-designed tubeless tires are mounted on tough, cast aluminum alloy wheels.

Poly Chain Drive.
The feel of a shaft. The price of a chain.

The Kawasaki KZ440 LTD with Poly Chain drive. Sleek styling, shaft-drive smoothness and comfort with a low, chain-drive price.



The Poly Chain belt uses aramid fiber cords for strength, and woven nylon facing for long life.

The construction and low inertial properties of the Poly Chain belt absorb driveline shock to reduce vibration for a smooth ride.

The low unsprung weight of the Poly Chain system helps maintain handling agility, and does not have a shaft drive's characteristic torque reaction.

The self-lubricating Poly Chain belt never requires chain oil, so it's extremely clean to operate.

Belt stretch is virtually non-existent, so frequent rear wheel adjustment is not necessary.

"Impossible! The smoothness and convenience of a shaft, with the price and simplicity of a chain?" The experts never thought it could happen. But while they were sitting on their stepped seats, we were putting our act in gear.

Introducing the latest innovation in drive-train technology: Poly Chain* drive. Not a shaft. Not a chain. But a combination of their best features, made possible by space-age materials and Kawasaki's down-to-earth engineering goals.

You want smoothness and durability? The Poly Chain belt uses a composite of three synthetic materials that absorb driveline shock without sacrificing strength. The ride is shaft-smooth and whisper-quiet; yet, with proper care, the Poly Chain belt can outlast a conventional steel-link chain.

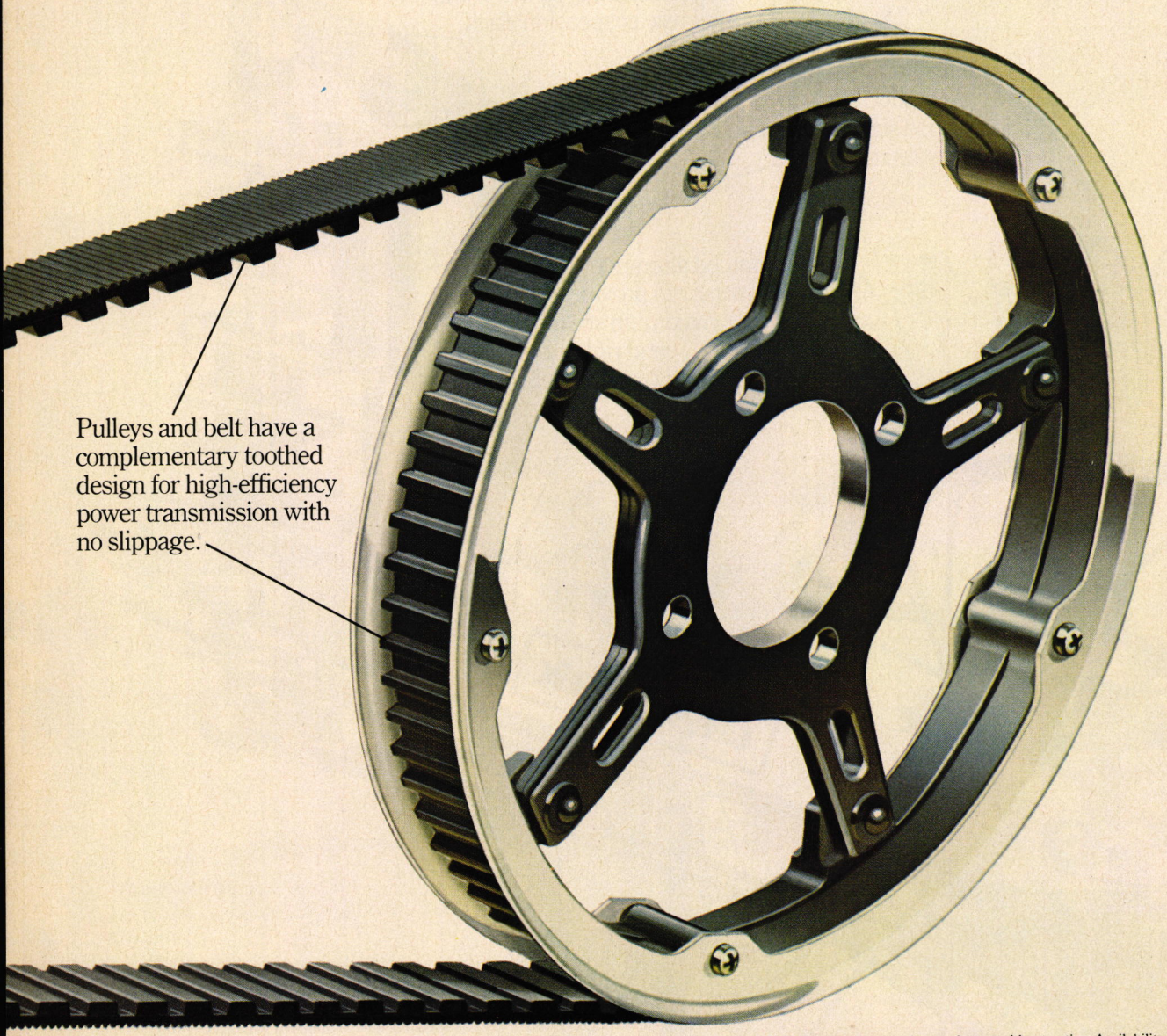
Low maintenance and clean running? Checking belt tension takes only seconds, thanks to a clever tool Kawasaki provides. Poly Chain belt adjustments are required far less frequently than for a steel chain. And no lubrication means there's no oily mess on hands or motorcycle.

Low unsprung weight and a sporting feel? The weight of the Poly Chain system is comparable to a steel chain and sprockets, and much less than a shaft system. All else being equal, lowering the unsprung weight yields a more comfortable ride and improves control. Plus, you won't get the shaft drive's up-and-down torque reaction with Poly Chain drive.

If you're looking for a mid-size bike that's high on comfort and appeal, but low in price and maintenance, check out the new KZ440 LTD with Poly Chain drive. It'll move you. Smoothly.

Kawasaki

Don't let the good times pass you by.



Pulleys and belt have a complementary toothed design for high-efficiency power transmission with no slippage.

Specifications subject to change without notice. Availability may be limited.
*Registered Trademark, Gates Rubber Co., Denver, Colorado.

When we created a better suspension system, we weren't just spinning our wheels.

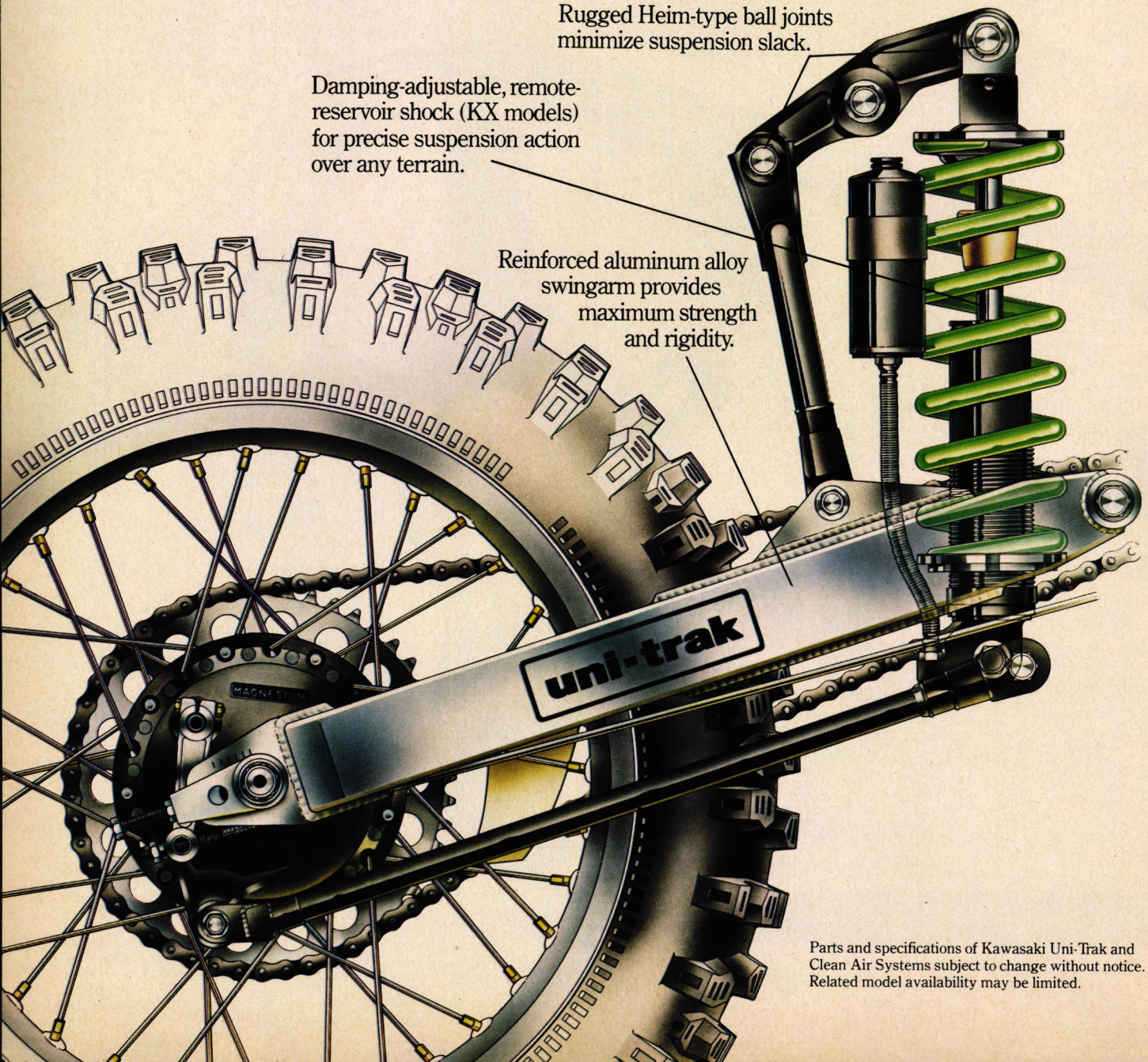
Uni-Trak.™ While everyone else had their heads in the clouds, we had our wheels on the ground. Longer. Longer than any other form of suspension, according to Team Kawasaki rider Brad Lackey. And with more European moto wins than any other rider on the circuit last year, he oughta know.

Uni-Trak. One strong shock connected to the swingarm through a rockerarm. The rear wheel moves parallel to the shock, vertical to the ground. The center of gravity is down low and central, to work for you—not against you. You hook up better in the corners as well as down the straights. You track straighter through the stutter-bumps and whoops.

You'll be seeing a lot of imitators in the years ahead. When you do, remember the people that made the original one work. The guys up ahead on the track. Kawasaki.

Kawasaki

Don't let the good times pass you by.



Parts and specifications of Kawasaki Uni-Trak and Clean Air Systems subject to change without notice. Related model availability may be limited.

Kawasaki's exclusive Clean Air System. Meeting EPA standards doesn't mean lowering ours.

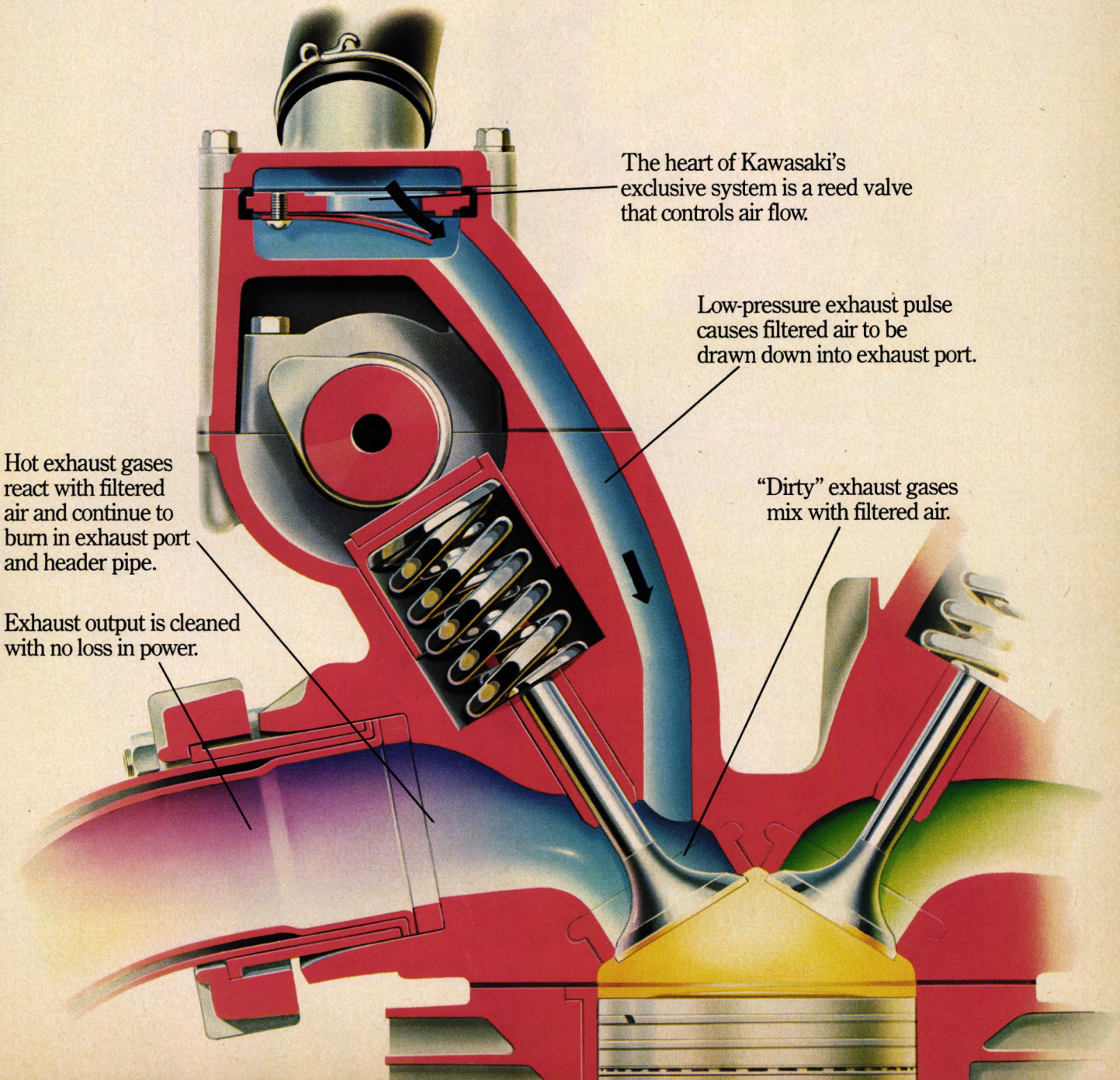
Performance. For some, meeting tougher EPA standards brought a tear to the eyes. For others, pollution had much the same effect. The solution? Locate a small reed valve above each cylinder that helps the engine clean up its exhaust without a loss in power. A simple idea. The best ideas always are.

This is how it works: Between combustion cycles, there's a low pressure pulse that occurs just after the exhaust valve closes. This pulse opens a reed valve which admits filtered air into the exhaust port. Because of the high heat already present, unburned combustion gases combine with this extra air, and emissions are effectively reduced. More effectively than a smog pump or catalytic converter, because our clean air system doesn't rob power.

There you have it. Performance. A standard we've always had. One we'll always keep.

Kawasaki

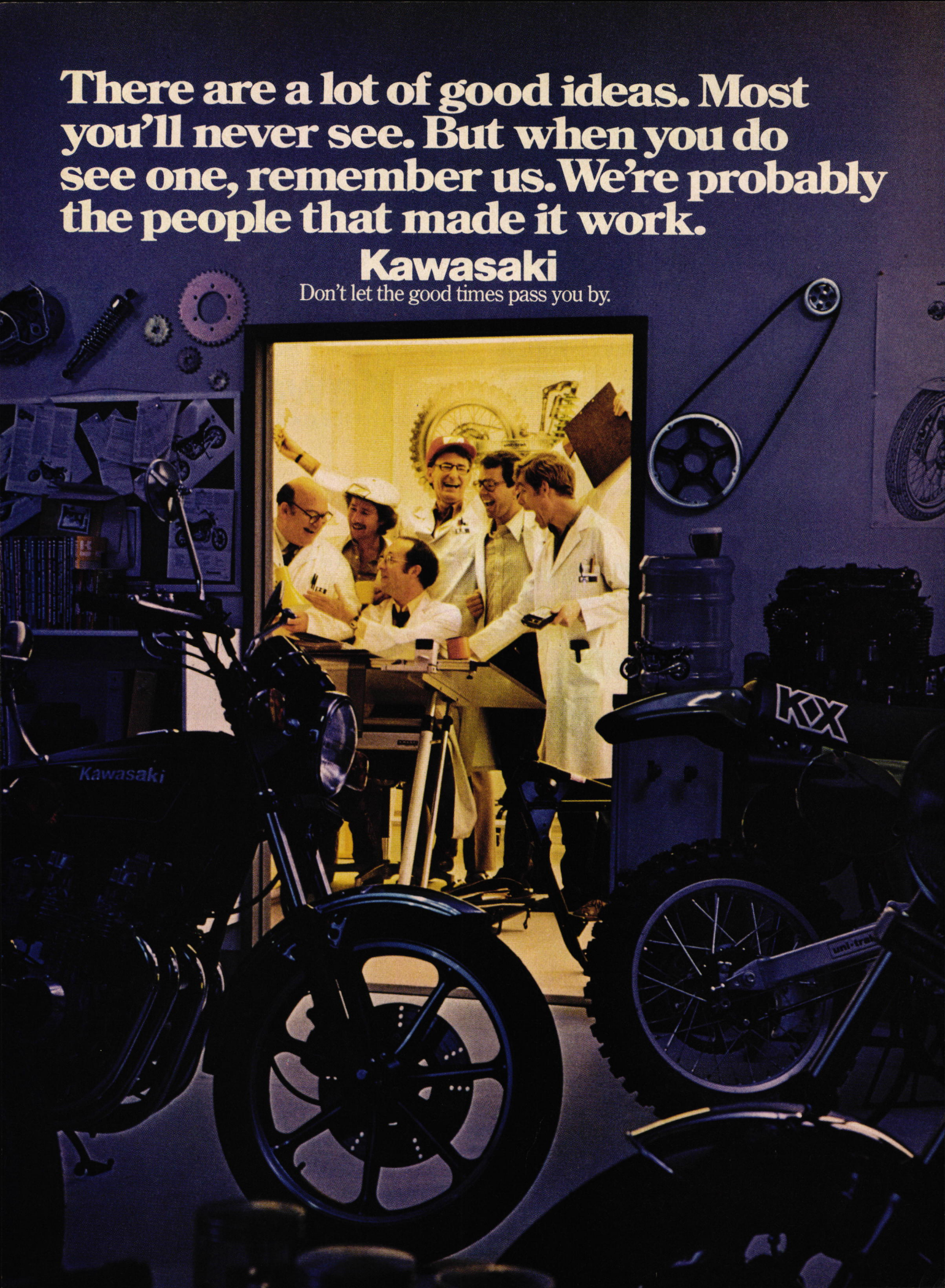
Don't let the good times pass you by.



There are a lot of good ideas. Most you'll never see. But when you do see one, remember us. We're probably the people that made it work.

Kawasaki

Don't let the good times pass you by.



GUIDE LINES

Cycle Guide's Monthly Chronicle of Scoops, Tips, Rumors and Hard Facts

BY LARRY WORKS

COMING SOON

• Last month's Rumors section ran an item on the **Vetter** Mystery Ship, claiming that news has surfaced that the bike will carry a $10,000 pricetag. Well, as it turns out, that figure was wrong—by about $5.

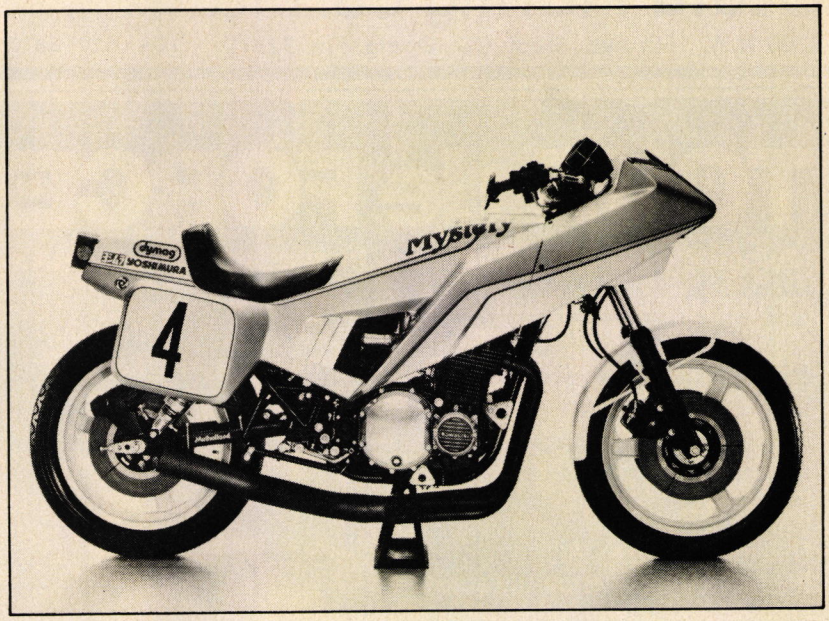
Following months of speculation on its specifics, the Vetter **Mystery** Ship has emerged from the clouds of rumors, tall tales and simple untruths. It is now known that the Mystery **Ship** is based on the 1978 Vetter Superbike; like that roadracer, this limited-edition street missile is powered by a **KZ1000** engine. Furthering the likeness between the two machines, the Mystery Ship's frame has been strengthened to Superbike racing spec and the engine has received the attentions of **Yoshimura** R&D. Specifics on the engine will vary from bike to bike in the Mystery Ship series, though, since Yoshimura will set the engine up pretty much how each owner wants it.

There will be only **200** of those owners, though, since that's the total number of Mystery Ships that will be built. Each bike's position in that series of 200 is painted on the side-mounted numberplates. Exclusivity isn't all that the Mystery Ship offers, though. The specs also include a quartz halogen headlamp, Michelin PZ rubber, a six-gallon hand-formed aluminum gas tank, cast magnesium wheels and a dry weight of 495 pounds.

• Now that your mindset is attuned to an enticing street bike that a simple **application of money** could put into your garage, try considering one that you can't buy—at least not yet. It's the **European** version of the new **Yamaha 650** four. The bike is drawn to much the same spec as the boulevardier scheduled for the U.S. market, but the Eurobike shares its styling with another **non-U.S.** streeter, the RD350 L/C. It's possible that interest displayed by Yamaha's dealer network could cause the bike to be imported next year.

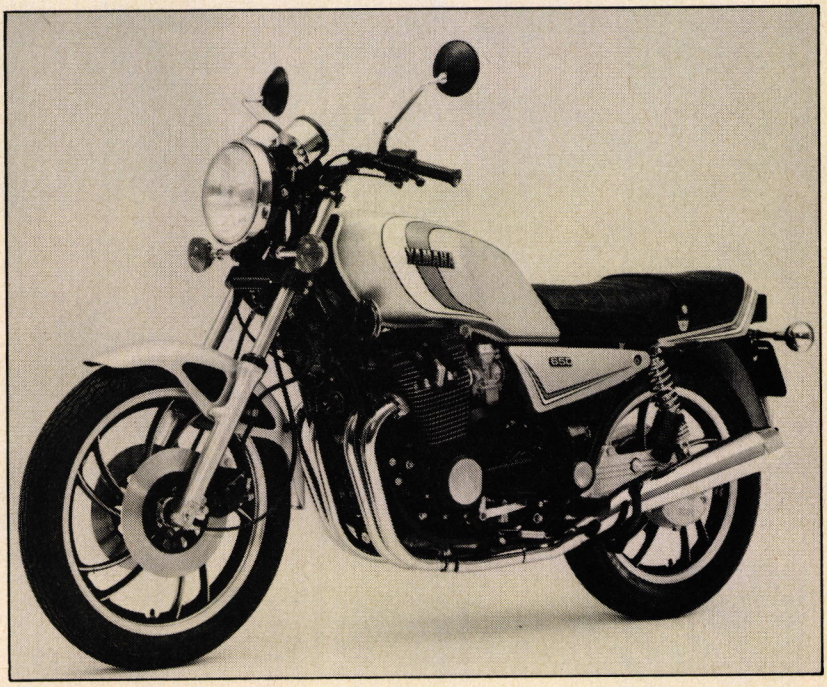
• Chances are that you're now buying **gas** from a pump that dispenses the precious stuff by the **half-gallon.** Well, coming soon is a change in all that, according to the government. The pumps won't simply be converted to full-gallon sales, though. The U.S. **Metric** Board reports that all-metric **gas** stations are on their way. The board adds that more than 2000 **Stations** have already made the switch.

• And another **government** prediction on what's coming concerns **1984**, the year of Big Brother. Well, according to **NHTSA**, surely expert on the topic of **Big Brother** among other



Number four in a limited-edition fleet of 200 Vetter Mystery Ships

The 200 is the eye-catcher, but the bottom line reads $10,000.



New Europe-only Yamaha 650 four

Like the 350 L/C, add it to your list of Continental can't-haves.

Continued

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Complete Cycle Plating
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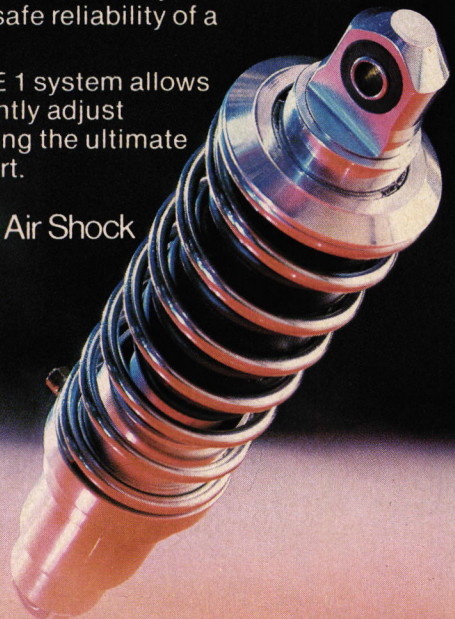
Mulholland FORCE 1™ Airshock for the Super Touring Bike.
Interpart continues its leadership in motorcycle shocks by bringing you the future shock today . . . the unique, Mulholland FORCE 1. This gleaming polished aluminum beauty brings to the superbike owner a shock worthy of its name.
The FORCE 1 combines a precharged gas shock absorber, "designed specifically for a motorcycle" with the comfort of an air spring and the fail-safe reliability of a mechanical spring.
This innovative FORCE 1 system allows the rider to independently adjust preload and rate insuring the ultimate in handling and comfort.
FORCE 1 Touring Air Shock

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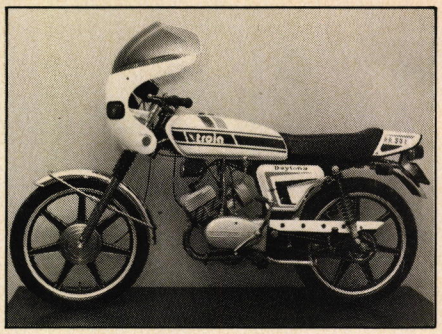

Forval Daytona NR50

Joining Yamaha in name only.

things, 1984 will also see 2.5 million **mopeds** on U.S. streets.

• Most new-model information centers on the **biggest** and fastest. Here's a **small** respite from all that tinsel. It's a new **Montesa** trials bike that's intended for riders up to 110 pounds, according to the factory. The **Cota 49** makes its mark with a three-speed 49cc engine, a 19-inch front wheel and an 18-inch rear hoop. Other than that, very **little** is what's known about the **tiny** trialer.

• Last month you read about Bell's new Tour Star helmet. Well, never one to let an introduction go unaccompanied, **Bell** has followed up with another **new** helmet, the Magnum III. Using some of the same technology that made the Moto III possible, the **new** open-face**Magnum** is the lightest Snell-approved helmet Bell has ever made. A five-snap visor and a two-year **warranty** come with the helmet.

• Yamaha got a lot of attention when it christened its 1979 RD400 **Daytona.** But these days, the Yamaha is not alone. The Portuguese company **Forvel** is now producing the Troia Daytona **NR50,** a 50cc screamer with a five-speed Casal engine. With a dry weight of **165** pounds, this Daytona reaches untold speeds when its engine lets loose with its full **6.5** horsepower.

• If you find that you're **losing sleep** wondering where you can pick up a **Peugeot** 102SP **moped,** that's your problem. The answer to your problem could be **Montgomery Ward,** which will carry the SP in its southern and western regional stores.

• But if your fantasies take a shorttrack turn, a **Honda** dealer is whom to consult. There you can work out those fantasies to the tune of a **shorttrack** engine **kit** for the **CR250R.** The kit runs a Lectron 40mm carb, a bigger flywheel and electronic ignition. In addition to a right-hand shift, the kit also produces a reported **40 horsepower.**

FEDERAL CASES

• Remember the bad old days of the New York City bike ban? Its author, **New York** Assemblyman Charles Schumer, is still trying. His latest efforts include **AB 8385,** a proposed bill that would net the rider of a noisy bike a year's **license suspension** if he were convicted of a motorcycle **muffler violation.**

• While riders in the rest of the country face an

Continued

The Great Ft. Knox Moto-War

Testing dirt bikes the Army way.

• The United States Army *does* care about motorcycles. At least it cared enough to almost double its effective strength in them, from the 18 reported in *CG*'s Oct. '79 story "Warbikes!" to 30. But more important than the number of bikes is the use to which they have been put: The additional 12 motorcycles were all part of a special Army test. The object: to determine the usefulness of bikes in the field, and to determine the characteristics of the best bike.

The results showed that the Army's 12 testers found that Motorcycle Number 570X was the best, followed by Number 575I. Poorest showings in the 75-day tests were made by Units 525X and 550D.

Because *Cycle Guide* actually obtained a copy of the test report, the code numbers can be translated thus: First in the hearts of the riders was the Suzuki SP370. Second was the Yamaha IT175—and the two worst were the Honda XL125 and Yamaha DT250. The Army points out that the conclusions aren't official Army opinion—just the feelings of the testers, which is why it omitted trade names from the report. *(We deduced the identities from the manufacturer's supplied specifications—ed.)*

The test was conducted at Fort Knox, Kentucky during the period from April 13 to June 16, 1978. Twelve "average" soldiers—including two women—were the test riders, and were trained by U.S. Suzuki of California under a competively awarded contract. The testers, according to the report, were to have been volunteers, but the very first snag the program ran into was that they were "volunteered" by their units. One of the women was a cook, whose confidence level, says the report, "was zero, if not negative; this was reinforced during the first day after she twice struck a brick wall at three to five mph." On the other hand, one of the testers *was* a volunteer, and a pro to boot: "He was caught in one of his displays with one foot on the seat, the other in the air, and his body in between—all moving at 30 mph down a gravel road." Needless to say, he was released from the test, and "maturity" became a selection criterion.

The test course itself ranged up to 20 miles, and covered conditions from unimproved roads to cross-country riding. Tests were run in dry and wet (read muddy) conditions, both day and night.

Key findings of the report will surprise few off-road riders. For negotiating muddy ground and generally rough terrain, an Army motorcycle should have, according to the findings, a hp-to-hundredweight ratio of 8:1 or more; the 11 tested bikes (the Honda XL250 cracked a cylinder head and was dropped from the test) showed "little variance" in safety, transportability and maintainability; and—surprise, surprise!—"noise signature varied directly with engine power." (Underscored by the fact that the Yamaha IT250 and Husky 250 were detected at 375 meters.)

The test riders and directors also developed 21 recommendations for design improvements required for their use. Highlights include locating the air filters and intakes to avoid water and dust ingression; having dimmer switches on all lights; better waterproofing on brake drums; better lube points on all cables, and lockwiring critical bolts to "stop them from vibrating off of the bike."

In testing the bikes, the Army not only inadvertently picked a War Games Winner—the 370 Suzuki—it also defined what it takes when the flag drops. "Because of the observed difficulty of cross-country riding and the demands that such riding places on the riders, it can only be stated that both a sturdy motorcycle and a highly motivated individual be selected, and that the individual have both the physical and mental aptitude for such missions."

The Army may not want or need motorcycles or motorcyclists right now, but its final summary above shows that if and when it does, it'll know the True Facts about how to select them. The only hitch it will have is in combining "motivation" and "maturity." In the end, the brass might have to settle moto-war rules like this: "No wheelies on government bikes—at least not in front of the General." —*F. Clifton Berry Jr.*

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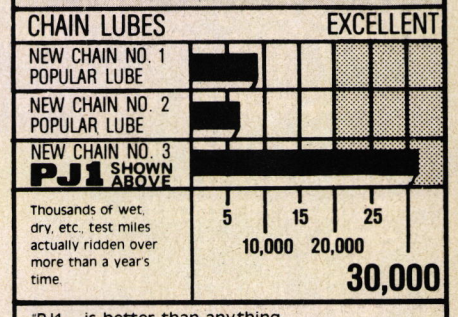

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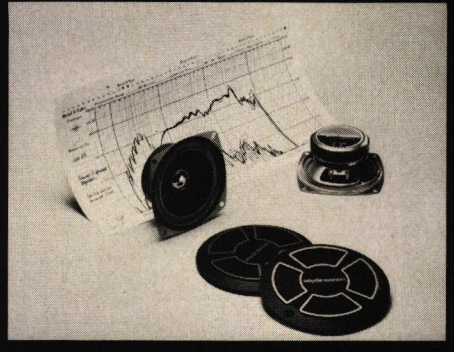

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GUIDE LINES *Continued*

EPA regulation on **hydrocarbon** emissions that is not expected to change drastically in the near future, **California** riders are coming up against a five-times-**tighter** restriction through the offices of **CARB,** the California Air Resource Board. The new California regulation would go into effect in 1982, and industry sources estimate that the **California-only motorcycles** necessary to meet the emissions levels would cost $250–$400 more per bike than similar 49-state models. Motorcycle Industry Council spokesmen have petitioned the board to either modify or rescind the regulation.

- In other California news, the state assembly approved a bill to **exempt gasohol** from state **air-quality** standards. The bill is expected to allow **year-round sale** of gasohol in California. Currently, CARB limits gasohol sales from April through October, the periods of greatest air pollution danger.
- On the flip side of the country, a **Maryland** bill that would have reinstated the **helmet law** that was **overturned** July 1 **failed** to clear the state legislature. **SB 90** went down for the count, 7 to 1.
- Under a **proposed** Standby Federal Emergency Energy **Conservation** Plan, motorcycles would be exempt from a $5 **minimum gasoline-purchase** restriction and a program of leaving vehicles at home one day per week. Also, **off-road motorcycles** would be exempt from a tentative **emergency ban** on recreational vehicles. Unfortunately, while making those concessions to motorcycles as **fuel-efficient** transportation units, the plan would still hold motorcyclists to an odd-even gasoline purchase restriction.
- Whether or not motorcycles are included in any further gas rationing programs has yet to be decided, but figures from a **Department** of **Transportation** report show that while making up the largest group of land-based recreational vehicles, **off-road** motorcycles consumed less than 10 percent of the fuel used by vehicles in that category. To put that even further into perspective, 1977 figures show that **recreational** vehicles consumed only 1.2 percent of the fuel used by U.S. transportation vehicles. The DOT report also projected that moves by the federal government to **reduce** recreational uses of fuel probably would **cost more** than they could save.

HARD CASH

- Gasoline **rationing** is getting a lot of public support as the serve-everyone end-all answer to future gas shortages. And well it might be; but the next time some informed source mouths rationing as the **perfect** and **painless** solution, you might consider this: According to one recent government report, the **cost** of simply establishing and setting into motion a rationing plan would just clip the **$2 billion** mark.
- On a somewhat smaller scale, if that same informed source tries to tell you that holding an **enduro** is bad for **business,** don't you believe it. One recent AMA study showed that a sanctioned enduro can be **worth** more than **$20,000** to the community that hosts it.

Continued

SUZUKI POWER!

FROM TEAM PERFORMANCE

SUPERBIKE TUNING MANUAL

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and what does it mean?

The TEAM PERFORMANCE SUPERBIKE TUNING MANUAL is a dramatic new concept in evaluating high performance products by documenting and focusing on the mutual relationship and compatibility of one product to another by the use of expert tuning and dyno testing. Our objective is to promote and substantiate the performance capability of "TP" products both singly and together.

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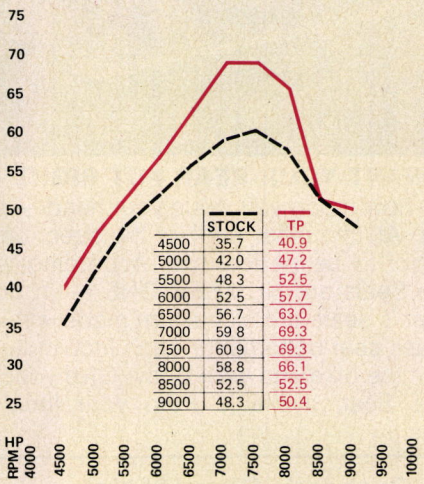

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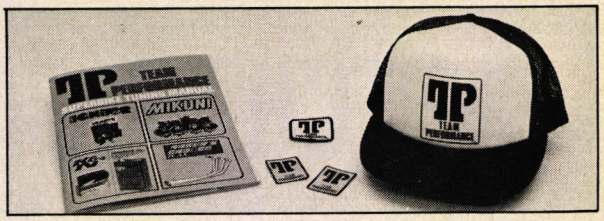

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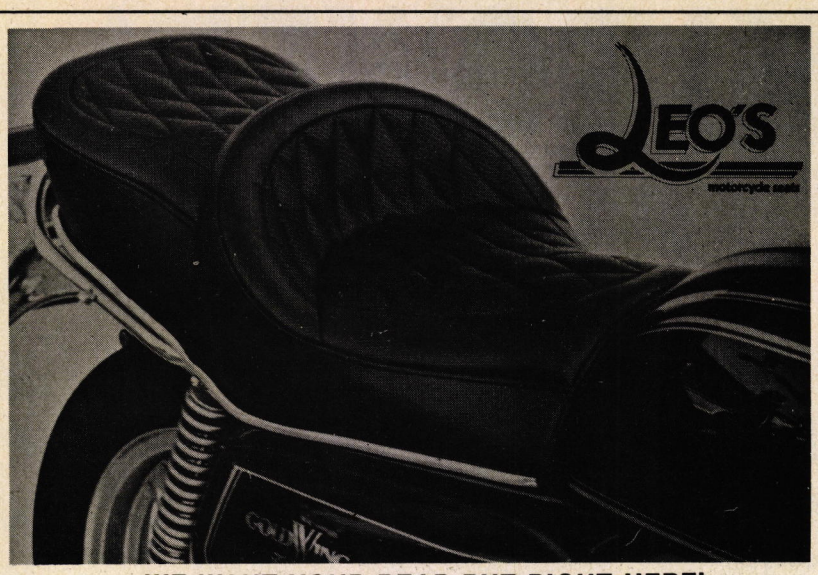

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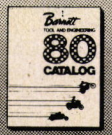

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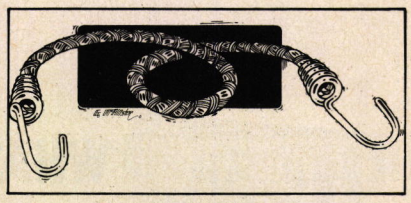


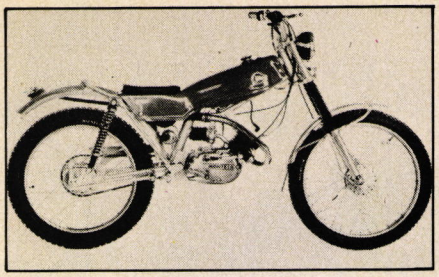
• Few items in a motorcyclist's kit are universally accepted and understood without question. Fewer still are bought with little regard to brand, color or even price. Yet there is one, at least. You see it in almost every biker's gear, whether he rides a loaded Gold Wing, a sleek Ducati Desmo, a Low Rider or a Suzuki PE: the ubiquitous bungie.

Because carrying gear on a bike is not always easy—but often is unavoidable—the bungie sees plenty of year-round use. And in its own way, the bungie serves not only to tie together packages, but also to bind together riders. Everyone has one or two, but where did they come from? The origin of the bungie remains shrouded in obscurity. They seem at times to multiply like paper clips in a desk drawer. Could it be that bungies are the product of some unfeeling monster R&D group, one that would just as soon be churning out lawn chairs or ball point pens?

No, bungies didn't emerge from some cold industrial think-tank. They started as the design of a Mr. Sandow, a British athlete who wanted something in the way of a chest exerciser. So, he contrived a device with stout rubber bands to tone up his muscles. And from that humble beginning, the bungie found its way to the back of your motorcycle's seat by way of France. The concept crossed the Channel, where Royoda, a firm that specialized in braiding cotton, made the switch to braiding rubber fibers into bungies. Royoda's product caught on immediately for industrial uses as a replacement for cord or steel wire, where the bungies' resistance to load shifting made them especially useful.

The bungie might have remained a little-known packaging device, but the growth of the motorcycling industry pushed the bungie business into the bigtime. And there it's stayed. These days the bungie is finding a new foothold in commercial and private yachting, according to industry sources. But the cord's tie is still to motorcycling. Royoda exports fully 30 percent of its production, with most of that amount going to help American riders keep their baggage intact. In fact, with the possible exceptions of the Statue of Liberty, Mdlle. Bardot and the French Fry, the bungie could well be France's most important contribution to America.

—Patrick Behar



Montesa's new three-speed Cota 49

Carrying small to great lengths.

• If there were a financial page for motorcycle manufacturers, a quick glance might show you that **Bultaco** has seen better days. A cut-down **work** force and some recent **labor** lock-outs have insiders wondering about the **future** of Sr. Bulto's motorcycle.

• But the slowdown for the Spanish manufacturers isn't confined to Bultaco. Reports show that **Montesa,** too, is facing limited **lay-offs** of some of its 600 factory **workers.**

• If you turned the page of that financial section to racing **sponsors**, you'd find that contingency awards continue to be a large part of the Hard **Cash flow.** And you'd also find a listing for **Lectron.** The carb manufacturer has set up a contingency award program of **$70,000** for the Florida Winter-AMA, the 125cc and 250cc National Championship and the Supercross MX Series.

• Reading further down the page you'd find that **Hi-Point** Boots is also busy laying its **contingency** plans. This year, Hi-Pointed riders who win, place or even do well in the AMA National, Trans-USA and USGP MX events will stand to collect. The Hi-Point pot is **$20,000,** with awards being paid out to **15th** place.

• **Wiseco,** too, is adding to the list of companies offering contingency money. The piston firm is making a $29,800 **ante** into the drag-racing **pot,** with its contingency support going to the 1980 **NMRA** Series.

• Still on the subject of contributions, **Bell** Helmets will have to be **counted** in the hunt. Bell is **donating** not money but FIM-style course **markers**, with **100,000** of them going to the 1980 AMA National Enduro Series and National Reliability Trials Series.

• And finally, if you find that you're still **fascinated** with other people's **money**, here's an item to satisfy your interest interest. This year's **Daytona** 200 Motorcycle Classic holds the distinction of being the **richest** motorcycle **race** to date, with a prize and contingency pot topping **$96,000.**

RUMORS

• The **biggest** rumor this month—and certainly the rumor of the biggest bike—centers on **Harley-Davidson** and arrives via **Porche** Design. For months there's been talk of a Porche-Designed Harley that would catapult American motorcycles into the Modern Age; now some specifics have surfaced. The latest semi-firm information about the bike is that it is purportedly a **1500cc** DOHC **water-**

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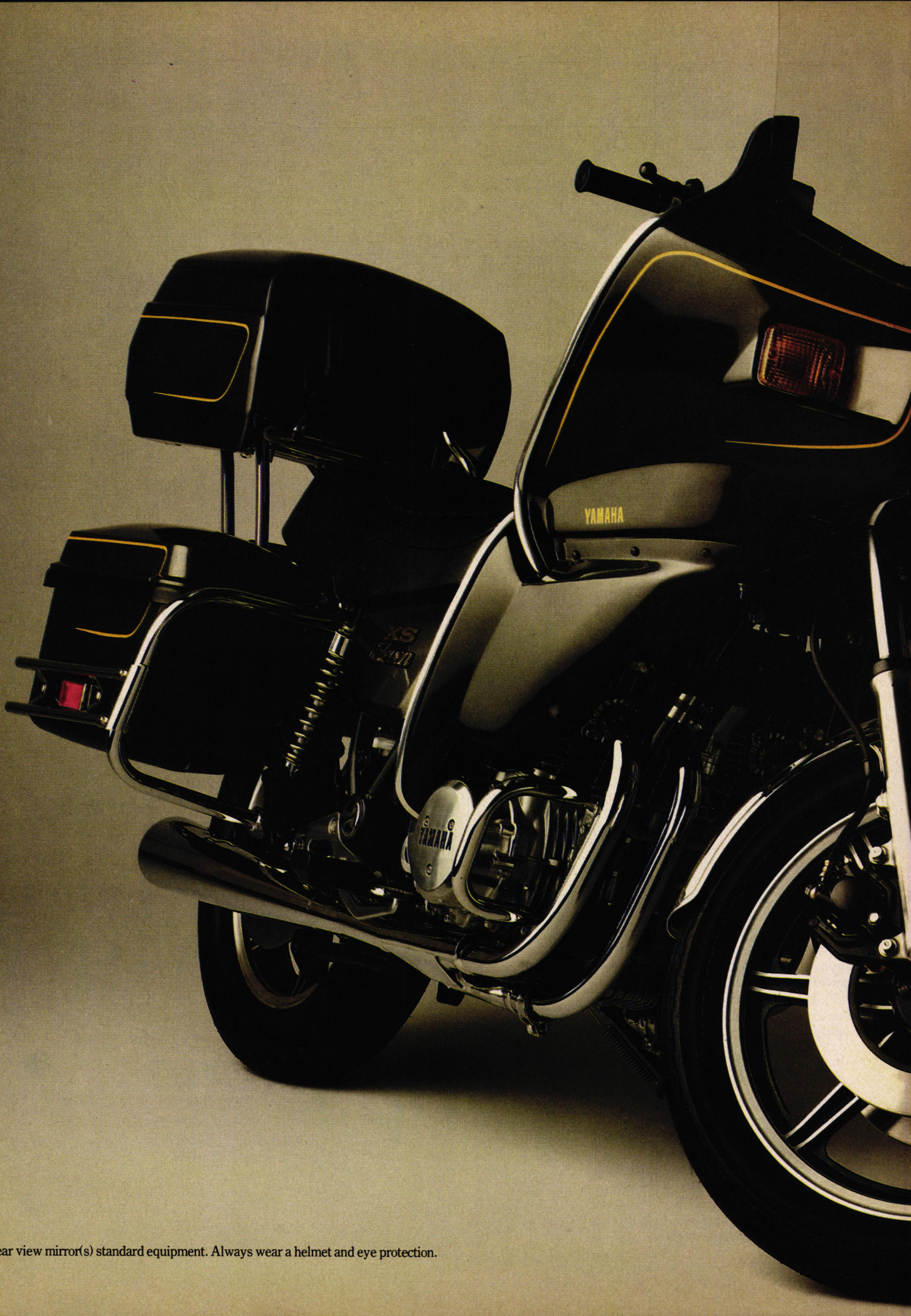

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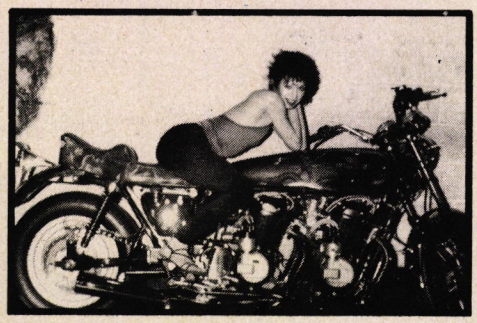

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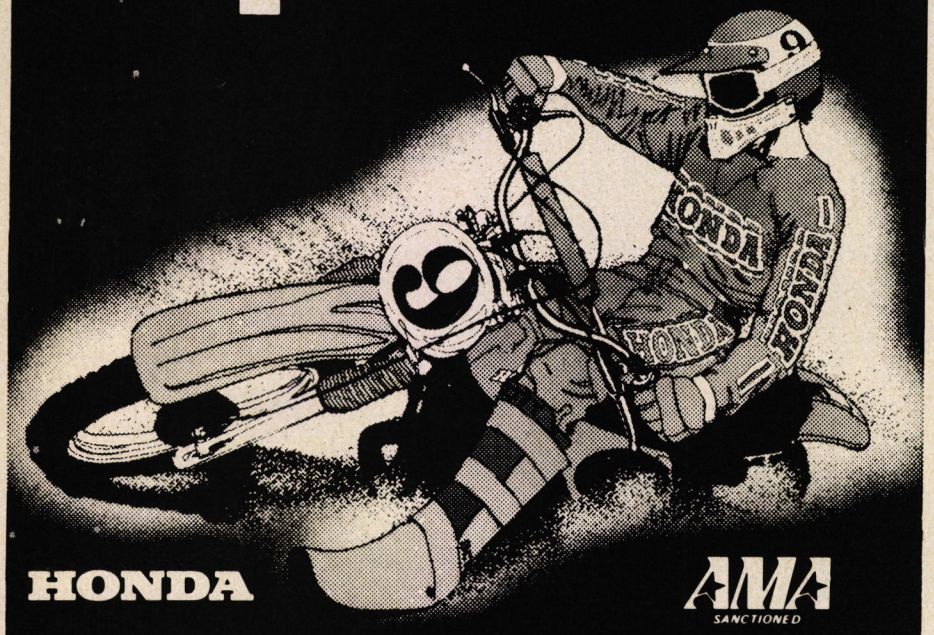

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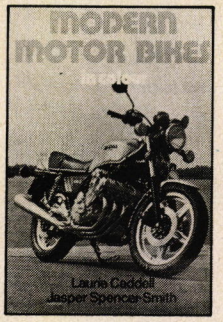

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• As a general survey of the world's motorcycles, this book falls in with some pretty high-class competition. In what may be an indicator of the new status of motorcycling in general, well-written and beautifully illustrated reviews of motorcycles are all too common these days; or perhaps, not common enough. To rise above today's high standards in this genre takes exceptional talent from both writer and photographer.

Unfortunately, this effort uncovers a meager handful of talent from the two people responsible. Laurie Caddell shows a good sound understanding of the motorcycle world, but somehow misses the mark in satisfying the reader. As a result, the book's lengthy review of motorcycle history is knowledgeable but incomplete, as are the descriptions of the machines.

Those descriptions cover 74 different bikes, including the more common Japanese machinery along with some rather esoteric European offerings. The technical facts turn out to be as short as the basic background to each model. But still, for those readers with only a passing knowledge of motorcycles, the book could prove interesting.

Most true motorcycle fanatics will find the facts in *Modern Motor Bikes* to be as limited as the photography. The publishers claim that the book contains "motorcycles of immense power in exciting color." They were half right. There are some exciting machines in the book, but the photography is stale and the reproduction below par. Not even the cover picture arouses much interest.

I see little reason for anyone beyond the neophyte stage to even bother flipping the pages of Modern Motor Bikes. It might make a great present for some friend's cousin who once decided that he'd like to own a motorcycle, but that's about the limit of its usefulness. For those seeking well-written and well-photographed books on motorcycling, there are plenty of better examples at the local bookstore. *—David Dewhurst*

Continued

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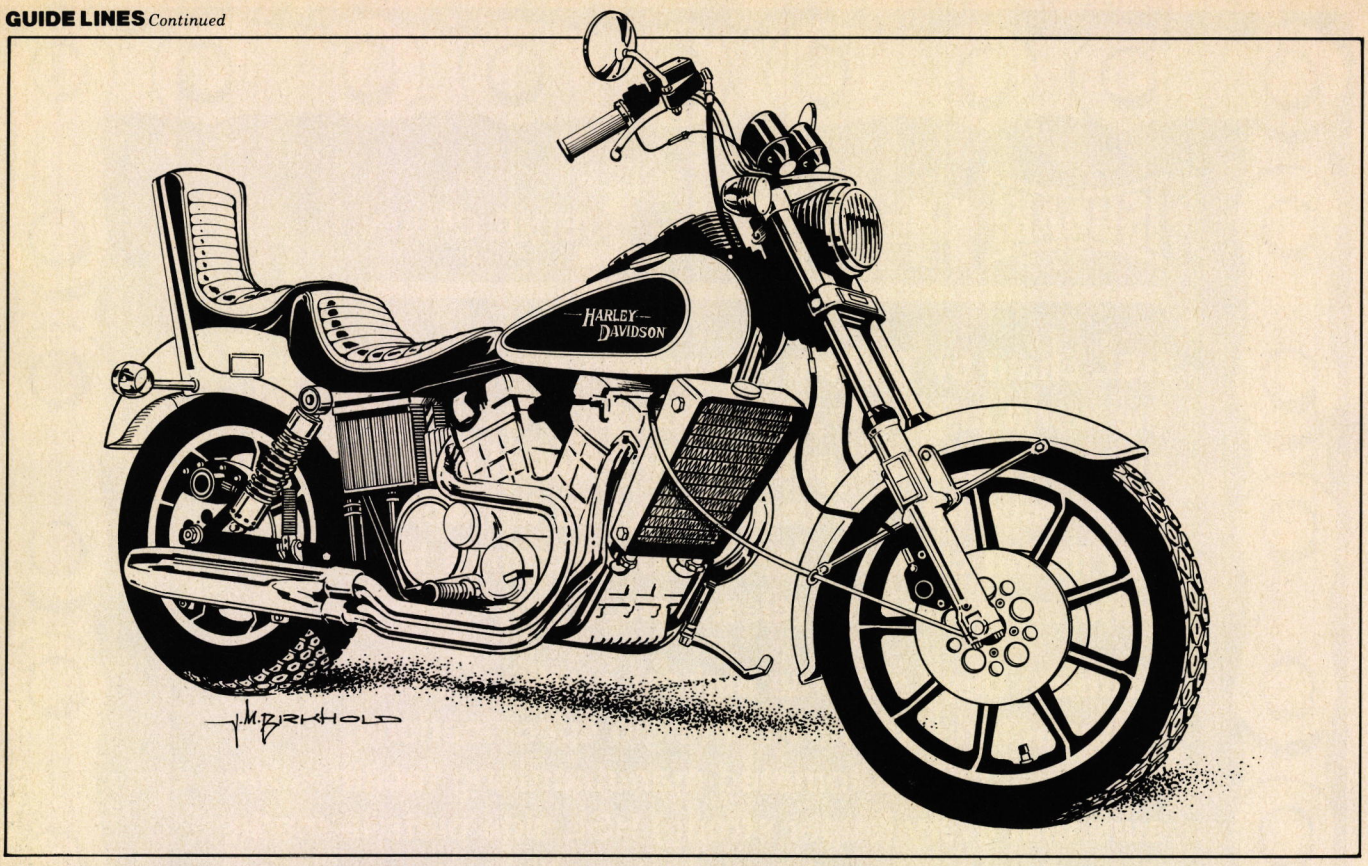

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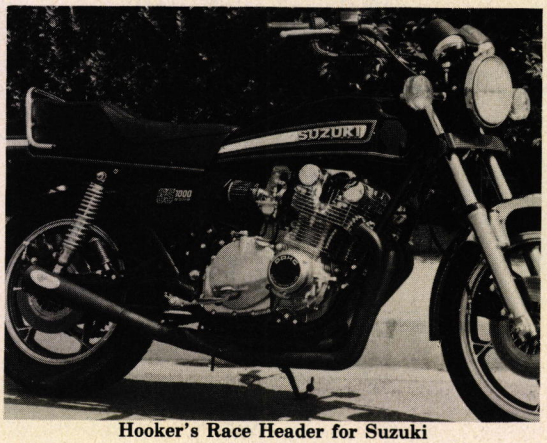

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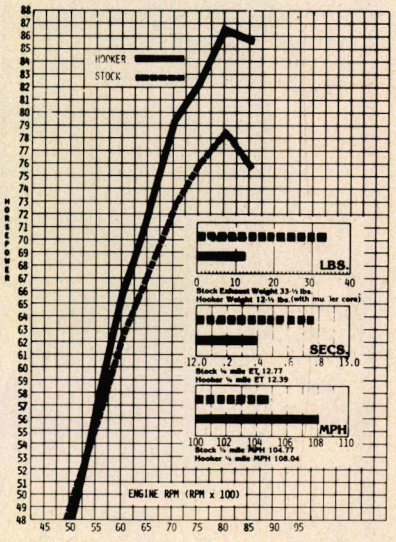

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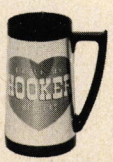

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cooled vee-four. Like the new Kawasaki LTD Classic, the mystery Harley is said to run fuel injection, specifically **Bosch** L-Jetronic intermittant injection.The ignition is supposedly electronic, possibly with timing controlled by a microprocessor. Insiders have said that the new Harley will produce 80 horsepower at the rear wheel, with torque being the central engine-performance parameter. Unlike the 1980 Sturgis, this rumor-Davidson is said to run a **chain final drive.**There's considerable speculation that the mystery bike's engine is carried in tandem, both to produce a narrow engine package and to avoid unnecessary power loss to the rear wheel through drive-direction changes. To cap off what's being said about the bike, Harley-Davidson will complete the rest of the package and pay Porche a smooth **$10 million** for its work in designing the gear that could make Milwaukee famous . . . again.

• Skipping away from Harley but still on the subject of **fuel injection,** with all the attention being accorded Kawasaki's EFI-equipped LTD Classic, there's been plenty of talk that several **1981 KZ fours** will be offered with **EFI** as an option.

• And for fanciers of somewhat smaller KZs, insiders are speculating that the **1981** model year will also see a **performance**-oriented 250cc street **twin** to cover the market segment left untouched by this year's **KZ250** single.

• Shifting over to **Honda,** the talk from the House of H is that the reviving of the **400F** has again been **shelved.** Apparently there's concern that the **pricetag** necessary to market such a bike would detune consumer interest. But at least this rumor has a happy ending. Some sources contend that the product planners think the pricetag might look a little more **palatable** if it covered the buy-in for a **half-liter** high-performance four.

• In further murmurings about Honda, insiders are claiming that some **hush-hush** research there could bear **fascinating** fruit, possibly as early as the 1981 model year. The talk concerns something in a fuel-**injected** street bike. And if you're the type who just has to junk a **street** bike's shocks as soon as you get it, the news about this machine is that it will save you some money; nearly half. The rumor about this bike is that it runs a **single shock.**

• Several months ago this column carried some talk about a **high-tech** Can-Am street bike that was on the drawing boards. This pavement-wrinkler was being designed as a **no-compromise** streeter with weight a serious consideration and price no object. If the latest round of gossip about **Can-Am**'s efforts has any truth to it, the drawing board has yielded a four-cylinder **16-valve 750** that's in a prototype **roadrace** stage right now.

• And taking a step from the tarmac to the dirt, **BMW** has captured some attention lately, with the **750cc** enduro bike it displayed at the last Paris Show (Feb. 1980 issue). A pair of the bikes were set to make the Paris-Dakar Enduro. What's making the rounds now is that the bikes were prototypes of the 800cc **"Trail"** that will be **introduced** at the next Paris

Continued

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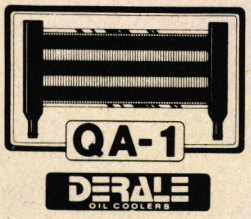

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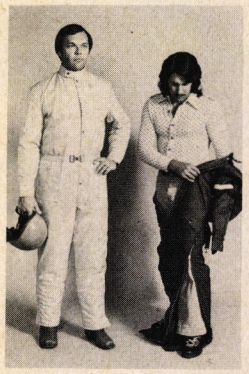

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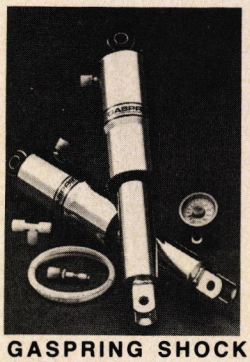

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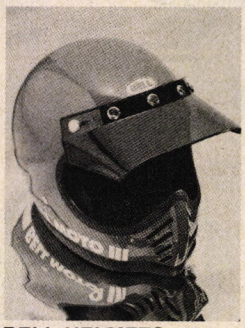

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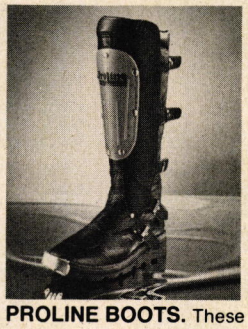

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GUIDE LINES *Continued*

gathering. The boxer-twin dirt bike purportedly will have a top speed of about **100 mph,** drum brakes and a 10-gallon fuel tank.

• In another dirty story, **Gilera** is said to be working on a water-cooled **125cc twin** that will hit **motocross** tracks later this year. The bike is said to fire both cylinders simultaneously and to produce a true **30 horsepower** at the rear wheel. The rest of the story is that the Gilera is expected to raise considerable **protest,** so a roadrace version is also said to be in the wings.

APART FROM THE CROWD

• If you've been wondering what the latest fashion in free energy is, it very well could take the form of **"weight power,"** according to one New York inventor. This would-be Edison wants to take advantage of that free-rolling energy by installing **"hit plates"** in the streets of New York. His theory is that the impact energy of vehicles striking the slightly elevated panels will be transfered to **subterranean fluid chambers**, then used to spin generators; finally, the juice will be sent to storage batteries. As **hellish** as the thought of someone deliberately adding obstacles to Manhattan's already-potholed avenues might be to motorcyclists, the inventor claims that the plan could produce as much as nine million **kilowatt hours** of energy from the vehicles entering New York daily.

• One of the arguments you've probably given well-meaning friends about why **motorcycles** are safe is that they can **dodge accidents** more easily than cars, right? Well, a study being conducted by the University of North Carolina is going to settle that question—and possibly put a permanent kibosh on that bit of cocktail-party conversation in the bargain.

The study won't gather its facts by **crashing bikes**, but rather by keeping track of in-state vehicle accidents to determine crash **rates** for motorcycles, trucks and buses. Some information that could eventually come out of the NHTSA-sponsored study is the same sort of statistic that's now being computed for passenger cars: What all of this means is that in a year or two, the group could publish a **Top 40** on the Motorcyclist's **Hit Parade**.

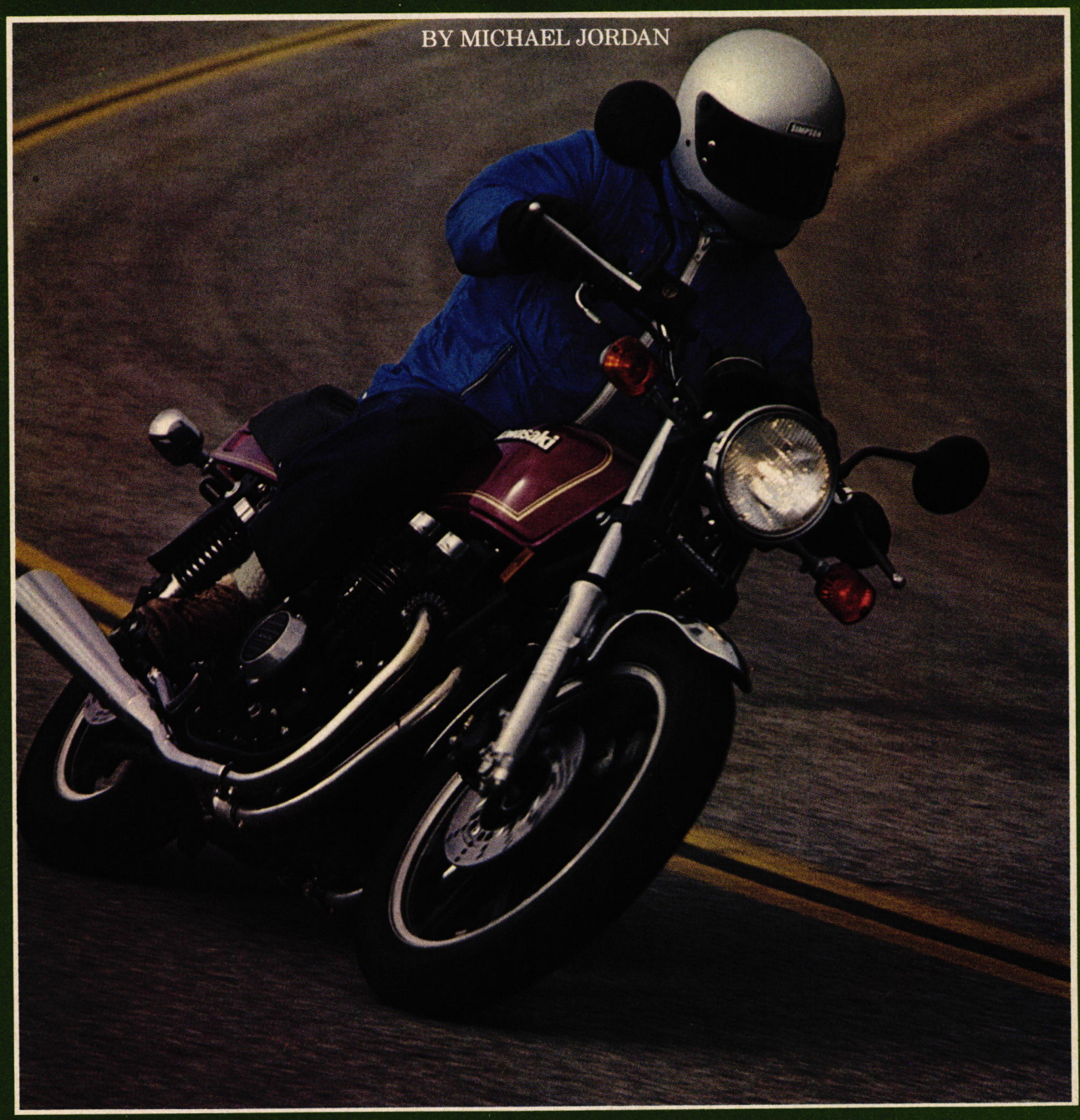
• You hear a lot about police **radar** these days, both pro and con. But according to testimony given in a recent Kentucky trial, some **inventive police** have discovered a use for traffic-control radar that probably was never considered by its inventors. According to Rod Dornsife, a former San Diego policeman who now works for the company that manufactures Fuzzbuster radar detectors, one of the reasons that police might be so strongly in favor of radar has little to do with **traffic control.** Dornsife testified that **cooping cops** back their patrol cars into a corner, set the radar's threshold on zero, then settle back for a quick **40 winks.** That way, anyone approaching the car to check out all the **snoring** would set off the alarm—and presumably give the cooper time to put his dignity back in place. ●

ROAD TEST:

Kawasaki KZ750 Four

Shrewd superbike with Father Physics' Seal of Approval.

BY MICHAEL JORDAN



Street bikes are getting fat. It seems like every added injection of horsepower brings with it an unwanted dose of heavy metal. And you pay for this bulk every time you toss your brawnbike into a corner, thread it through city traffic or hook it up with the gas pump.

Bikes like the KZ1300 aren't solely responsible for the trend to chubby motorcycles, either. Compared to what used to be thought of as a *big* motorcycle—a 400-pound Triumph Bonneville—the 524-pound Honda CB750F and Suzuki GS750ET have taken on the dimensions of an armored personnel carrier. You should never forget that every extra pound steals

Continued

PATRICK BEHAR

a tick of the clock away from you when you're accelerating and adds a few inches to your bike's braking distances. Fat is the enemy.

Some motorcycle manufacturers believe the only way to buck this trend is to coax more power from their bulk-bikes to disguise the fat. Kawasaki sees the problem differently. Its new KZ750 pares the superbike concept right down to its essentials, for at a fighting weight of 471 pounds, the KayZee weighs a staggering 53 pounds less than a Honda CB750F. Kawasaki's secret weight plan is easy to understand: The lean and mean 750 has been developed from the KZ650. The KZ650's razor-sharp handling, bitesize dimensions and modest weight have been combined with high-tech suspension and a supremely flexible engine to make a new superbike that assaults high speeds with intelligence and finesse rather than bulk and brute strength.

Kawasaki originally built the KZ650 to compete with 750cc superbikes with just the same philosophy. The ads proclaimed it the fastest 750 in the world. But before the 650 could make good its claims, the revised Yamaha XS750 and Honda CB750 F2 called them into question. And finally the introduction of the Suzuki GS750 in mid-1977 deflated the KZ650's aspirations entirely. By mid-1977, Kawasaki thought to retrench with a 750, but no new trick technology was on the horizon, since most of its engineers were engaged in building dirt bikes to fill out the model line-up. So the firm decided to exploit the 650's virtues rather than invent a whole new brawnbike. Light weight and a good power-to-weight ratio would be the themes of the new machine.

This strategy also provided the most expedient route to a 750cc superbike, but Kawasaki product planner Takayuki Tsuboi points out that other factors were at work as well. Tsuboi notes that during the Eighties, high performance will have to be achieved with less horsepower in light of what he describes as certain "social and environmental responsibilities." Tsuboi also perceives a new breed of enthusiast committed to motorcycles that combine comfort, light weight and maneuverability. A more efficient motorcycle, not just a faster one, will be the key to the superbike enthusiasts of the Eighties, Kawasaki product planners believe.

With this mandate in mind, Kawasaki engineers coaxed more power from the KZ650 motor with intelligence and attention to detail. As a result, the KZ750 engine hasn't been stressed beyond its limitations with wild cams, monstrous valves and bloodcurdling compression ratios. Yet it still churns out 74 horsepower at the crankshaft, an increase of 19 percent over the KZ650. There's 10 percent more torque on hand, too. That's less horsepower than the Honda CB750F's rating, but Kawasaki has power-to-weight ratio on its side. The KZ750 has 6.36 pounds/hp, the Honda 6.99 pounds/hp.

No magic was required to achieve the transformation of the KZ650 engine. Bore size swelled 4mm, while the compression ratio shrunk a half-point to a mild 9.0:1. Close attention to port shape and an increase in valve size—1mm for inlet valves, 2mm for exhaust valves—helped maximize the potential of the 750's 34mm Keihin constant-velocity carburetors. Kawasaki engineers believe that you need look no further than the increased displacement, larger carburetors and less-restrictive mufflers to account for the 750's horsepower bonanza.

Other changes were made to the engine to accommodate the newfound power. To begin with, a Hy-vo cam chain with an automatic tensioner substitutes for the KZ650's roller cam chain. Stronger springs boost the KZ650 clutch's ability to absorb punishment. The alternator's output has

increased 21 percent. And final-drive gearing is fractionally taller due to a higher fifth gear than the KZ650's (otherwise the transmissions are identical). So aside from stronger engine cases and the deletion of the kickstarter, the 750 engine actually differs little from the 650 motor, right down to the crankshaft, connecting rods and oil pump.

It could be that the engine's specifications don't impress you. Don't worry. Its performance will. The KZ650 engine has earned acclaim for the smooth but powerful way it makes horsepower, and the 750 engine amplifies that reputation. Kawasaki engineers claim that the deletion of the kickstarter and the addition of a Hy-vo cam chain even adds to the smooth rotation of the plain-bearing crankshaft. Like the Honda CB750F, the KZ750 uses Keihin carburetors, but they don't need an accelerator pump to help the engine respond crisply off idle. Moreover, the KayZee has enough midrange punch instantly on tap to make even hyperbikes jealous. Five minutes of running with the choke after a cold start is enough to get the Kaw's four cylinders ready to do business, and then it revs so easily while producing a broad band of power that the gearshift nearly becomes redundant. And the motor always responds without a lurch or a stumble, while the drivetrain lash is minimal.

The KZ750's 12.50-second quarter-mile time and 107.8-mph trap speed tell you how this bike rates in the superbike world—hard on the heels of the CB750F—but they don't tell the whole story. Match the KayZee against both a Suzuki GS750ET and a Honda CB750F in a contest of roll-on acceleration at 60 mph and the Kawasaki leaves its competition in the dust. The KZ750 requires no gearing tricks to humiliate the opposition, either, for 60 mph in fifth gear demands only a reasonable 4500 rpm. Meanwhile, gas mileage is nothing short of phenomenal. A session at Willow Springs Raceway dragged it as low as 39 mpg, but elsewhere it hovered insistently at the 50-mpg mark.

Kawasaki engine designer T. Akira believes that emphasizing a flexible powerband with the 750 pays off better than dabbling with exotic cylinder heads for maximum power. Akira admits that Kawasaki's two-valves-per-cylinder design sacrifices some peak horsepower to the four-valves-per-cylinder concept, but not much. Furthermore, the four-valve layout requires high rpm for peak efficiency, which in turn produces lots of noise and lots of power-robbing heat. And as one last drawback, Akira thinks that the small amount of airbox and muffler volume

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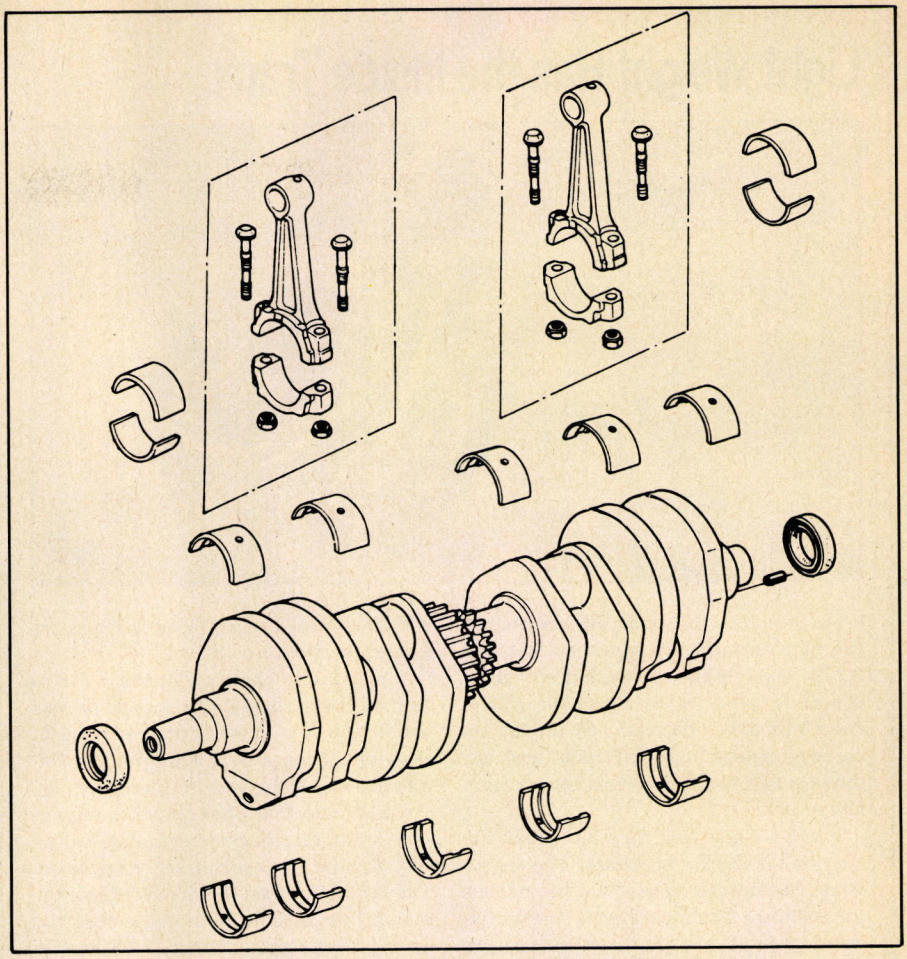
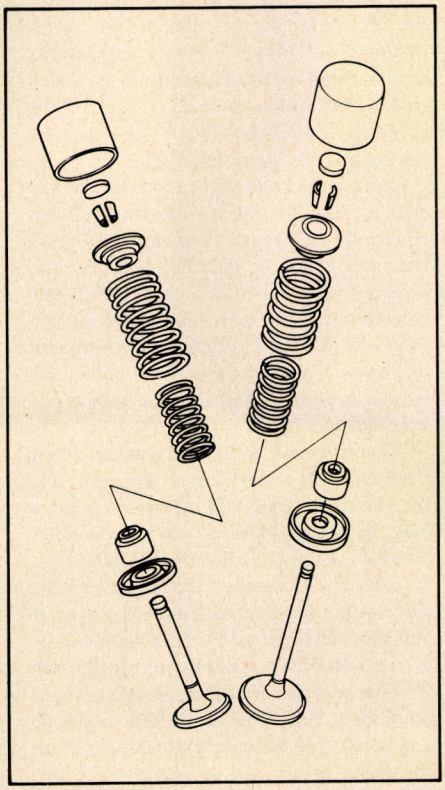


750's forged crank with plain bearings and 650-spec rods hold no speed secrets

More displacement, bigger carbs and intake ports smoothed with epoxy do.



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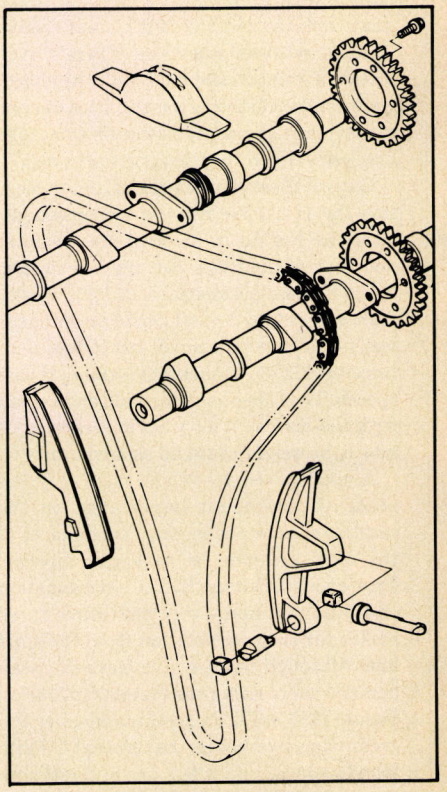
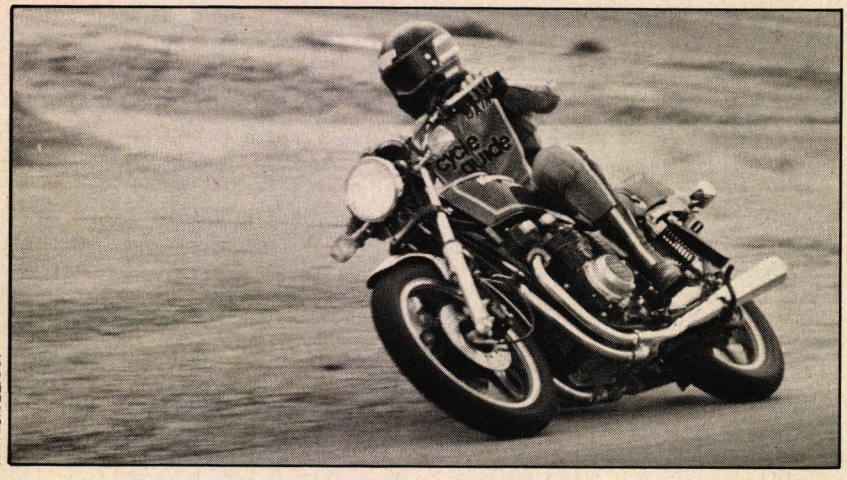
Removing the cams is a must to adjust.



Hy-vo cam chain replaces 650's roller

Tensioning automatically Suzuki-style.

Light Weight Has the Inside Track



PATRICK BEHAR

• For a motorcycle specifically targeted at the high-performance street market, the KZ750 tears up the racetrack pretty good. It's no surprise, really, since the KZ650 from which it's derived has proven its raceworthiness in sprint races and endurance events alike since its introduction late in 1976.

It doesn't take long for a roll call of the Kawasaki's track-wise assets. The engine flexes its muscles powerfully throughout the rev range. The transmission snicks from gear to gear with a light throw and engages positively, inspiring confidence even if you're bouncing the tach needle against the redline with every shift. The steering has quick reflexes and the taut chassis follows its lead without question. There's even plenty of ground clearance; and when hardware does scrub the pavement, it's a footpeg rather than the centerstand or somesuch bracketry. Even the tires grip fairly well.

Each of these characteristics, not to mention the adjustable Kayaba suspension, assists the KZ750 in meeting the peculiar demands of the track. But the key weapon in the Kawasaki's arsenal is its light weight. A shortage of fat doesn't translate automatically into faster lap times, but it does reinforce the KZ750's inherent goodness at race speeds. The time that Gingerelli and I spent with the Kaw at Willow Springs showed us how light weight could be an advantage.

A good power-to-weight ratio may not seem of paramount importance on the racetrack, since the engine spends most of the time screaming at peak rpm anyway. True enough. But the KZ750's combination of 471 pounds and a very flat torque curve makes for easy acceleration from the start line. Although the Kay Zee lacks the peak horsepower of either the Honda CB750F or Suzuki GS750ET, its good manners at the green flag overcome that deficit. While Honda and Suzuki riders busily coordinate clutch and revs to keep from either bogging the engine or lighting up the rear tire, the KZ750-mounted racers head deliberately toward the first turn.

A responsive chassis like the KZ750's with its firm suspension rates could prove a liability on a track as bumpy and full of elevation changes as Willow. Yet the Kawasaki's reasonable weight comes into play again. A heavy bike often amplifies suspension inputs, resulting in an ungainly wallow that signifies an overworked suspension. The KZ750, on the other hand, follows the racing line without skipping across the bumps or bumbling around. The Kawasaki really struts its stuff in Turn Eight, a top-gear bend where speed, cornering forces and bumps unite to upset a bike's equilibrium. After a quick twitch that seems distinctive of this motorcycle, the KZ tracks across Eight's rough pavement at speed without hesitation, even if you back off the throttle. The 750 just doesn't lose its composure and try to buck you off.

Light weight also gives the Kawasaki an edge in medium- and low-speed directional changes. The bike does feel more top-heavy than a CB750F, and it doesn't heel over into a corner with the Honda's ease, yet it still gets into corners with competitive speed. Basically, its weight minimizes the amount of muscle it takes to pick it up out of one corner and put it down in the next, a distinct advantage.

When it comes to final judgments about the king of the superbikes on the racetrack, the Honda CB750F still maintains its edge over the Kawasaki. What was unlooked for, however, is the fact that the KZ750 is genuinely competitive, even though it is really a three-year old design with more horsepower and new suspension. Further assessments of the superbike rankings naturally will have to wait for the obligatory late-night arguments. But in the meantime, there's no doubt that the Kawasaki runs up front on the track, just like it does on the street. The KZ750 may weigh only 471 pounds, but it's no lightweight in action. —*Michael Jordan*

available on street bikes further undercuts the better breathing theoretically available from the four-valve concept. No, he says, shaking his head, consistent and usable horsepower at lower rpm makes more sense on the street, no matter what people say about four-valve designs.

This sort of thoughtful, pragmatic thinking is reflected in the KZ750's chassis as well as its engine. Except for two things, the frame of the 750 is identical to that of the 650. First, the engine is located in a different position to reinforce high-speed stability. Secondly, the frame rails beneath the seat have been dropped 20mm for a lower seat height, for as suspension engineer Hank Hosoi asserts, even large people value the impression of maneuverability fostered by low seat height.

As anyone who has ever ridden a KZ650 around a racetrack will tell you, the 650's steering geometry delivers nothing but good times. But while the 650's frame is clearly appropriate for the 750, the smaller bike's stiff-legged suspension is not. So Kawasaki installed suspension trickery from Kayaba on the 750—an air-spring fork and shocks with four-position adjustable rebound damping.

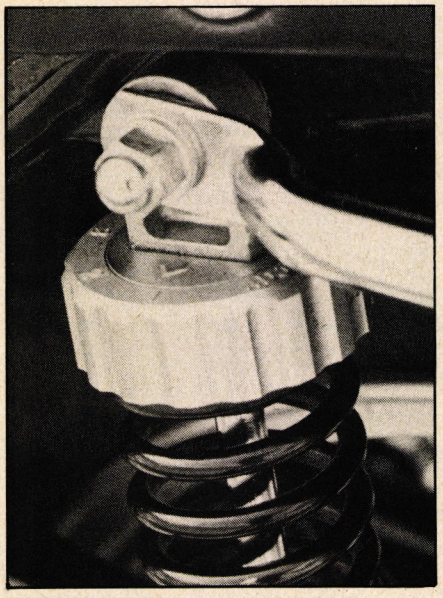
The 750's fork has two anti-stiction bushings just like the latest generation of air-spring units, one at the top of the slider, the other at the bottom of the fork tube. The range of adjustability is 8 to 14 psi, with 10 psi recommended for most circumstances. A substantial amount of front-end dive reveals how much softer the 750's front end can be than the 650's because of its progressive action. Yet strangely enough, the rear suspension is much stiffer than that of the KZ650. The spring rate is 21 percent stiffer than that of the the Honda CB750F. Front-end action is stiffer and the softest notch of adjustable damping seven percent stiffer (each position of adjustable damping represents a step of 20 percent).

This modern suspension gives the Kawasaki a comfort factor superior to that of the Honda CB750F. Front end action is particularly smooth, although overall the ride is choppy (like the Honda's) compared to a GS1100 or GS1000, partially because of a relatively short wheelbase and partially because of the stiff rear suspension.

You do make some sacrifices to comfort when you're aboard a KZ750, though. High performance is the watchword here, so the stepped seat holds you firmly in place like the seat from an AMA Superbike. Unfortunately, the seat isn't well-shaped or particularly resilient. First of all, it slopes forward, making a compact bike feel even

smaller. Secondly, it doesn't insulate you from the thumps as the short-wheelbase bike pitches back and forth on its suspension while you're riding across the concrete slabs of the Interstate.

Of course, the KZ750 wasn't built to compete with GL-1100 in terms of comfort. It's built to go fast, and when you're ready to wrap the speedometer needle around the 85-mph peg, the KayZee perks right up. At Willow Springs, the 750 performed best for my 160 pounds with 18 psi in the fork and either position No. 2 or No. 3 both for shock preload and damping. The Kawasaki corners like an effective compromise between a Honda CB750F and a Suzuki GS750ET. Like the Suzuki, the KZ carves through high-speed bends with rock-steady stability. Then in the slow corners, it changes direction almost as



Damping that's four-way adjustable

With stiff springs for racy manners.

effortlessly as the Honda, but without the slightly nervous feeling the CB750F occasionally shows. The Kawasaki's suspension was definitely on the firm side with my settings, but overall the bike felt taut and responded in the crisp fashion of race-bred machinery.

The KZ750 adapts to the street with equal proficiency. Naturally, a relatively large rider on a relatively small bike significantly raises the overall center of gravity, providing good straight-line stability. Meanwhile, steering geometry that helps the bike answer the helm swiftly and precisely combines with a short wheelbase to give the bike's handling a light feel whether you're in traffic or soloing on racer road. You never have to muscle this motorcycle. And you've always got plenty of reserve in hand, whether it's horsepower or cornering clearance. The brakes back you up, too, for they've lost the sudden feel of the KZ650's anchors thanks to smaller discs and new pad material.

It's easy to think of the KZ750 strictly in terms of the KZ650, but while this strategy helps you understand how the 750 works, it doesn't do justice to the bike's powerful claim to superbike status. And yet one of the strongest things the KZ750 has going for it is this allegiance to the 650 concept—light, fast and maneuverable. Of course, its styling is uninspired and the dashboard's single flourish is one tacky voltmeter, but the KZ750 gives you just enough instead of too much. Rather than rattle your cage with outrageous speed, the KZ750 simply is fast enough. Rather than perform any task brilliantly, it does everything well. Yet this motorcycle is not mediocre—it's efficient.

A ride on the KZ750 will remind you how hype about horsepower has distracted all of us from the central tasks a motorcycle should perform. Because a bike has a responsibility to be enjoyable when it's upright and cruising as well as when heeled over and tapped-out. Usable horsepower is indeed better than peak figures that look good in sales brochures. And the light weight and quick reactions of the KZ are indeed better than those of ponderous bikes that need to be herded around like tugboats. And it's in these respects that the KZ750 really delivers.

It isn't easy to make a big deal of virtue, but if it's possible to build a virtuous superbike, Kawasaki has done the job. This motorcycle has been tailored to what you need, not what you *think* you need. Kawasaki always has felt compelled to do things differently from its competitors since it was the last to enter the motorcycle field, but in this instance that impulse has led it in the right direction. Aside from continuing to feature the most complicated of valve adjustment procedures, the KZ750 heralds a new spirit of simplicity, and in the process demonstrates that it's possible to provide high performance while living up to governmental, social and environmental responsibilities.

For a long time, motorcycle manufacturers have treated old Father Physics as the enemy. But it never works. Kawasaki has studied hard, done its homework and the KZ750 gets a passing grade. You can spout quarter-mile times and horsepower figures all you want, but a motorcycle can never truly become a superbike until its makers understand that you can't fool Father Physics. Kawasaki understands—and that's why the KZ750 earns its superbike stripes without qualification. •

Ride Review

• Window tricks have always amazed me. You know, sawing pretty ladies in half, lead into gold and the like. I'll spend hours trying to figure how the man in the silk hat got the right piece of the card into the sealed envelope. Or how the coin jumped from one pocket to the other, right before my eyes. Astounding.

And because of that fondness for sleight-of-hand, it comes as no surprise that I'm equally fascinated by the KZ750. Starting with the KZ650—no slouch by any account—the resident magicians at Kawasaki added more displacement, more power, more everything. And came out with a lighter bike. Then they stirred in an improved, rethought suspension, and produced in the 750 a ride that's better in every dimension than the original. But don't bother asking how they did it; they'll never tell. It spoils the trick. —*Larry Works*

• You wouldn't have to twist my arm to persuade me into adopting a KZ750 of my own. Because even though I was prepared to be bored silly with what I considered merely a recycled 650, I came away filled with admiration and respect for what turned out to be a very fine 750.

That didn't happen naturally, though, for the KZ isn't high-tech, nor is it superior to other 750s in any aspect of high performance. Besides, what I like about this Kawasaki isn't found in what it does exceptionally well—which is little, if anything—but in the negative things that it doesn't do *at all*. It's a motorcycle totally without serious fault. And when faced with a choice between mediocrity punctuated by occasional brilliance, and consistent competence, I'll go for competence every time. So just park that KZ750 right over here, please. —*Paul Dean*

• 750 warfare is going to be interesting. Just when I thought Honda had the handling answer with the CB750F, Kawasaki strikes with its KZ750. Now there are two 750s that steer and handle like small-bore racers. I feel as confident going flat-out through sweepers on a racetrack as I do on freeway off-ramps aboard either of these 750s.

But I think the Kawasaki has the edge in the engine department. The 739cc four has the same muscular powerband found on every multi-cylinder street bike from the Big K. The hefty power is especially handy when cutting through a series of switchback turns, shifting down a gear for entry, then grabbing the next gear up on the exit. Since there is no hesitation from the engine, you make a smooth, fast arc through each turn. Because of engine performance alone, I don't hesitate to give this motorcycle a five-star rating.The good handling just turns them into gold stars. —*Dain Gingerelli*

Kawasaki KZ750 Four

SPECIFICATIONS:

IMPORTER: Kawasaki Motors Corporation
2009 East Edinger Avenue
Santa Ana, California 92711

CATEGORY: street

SUGGESTED RETAIL PRICE: $2749

ENGINE

Type ..... four-stroke transverse vertical four
Valve arrangement ..... double overhead camshafts
Bore and stroke ..... 66.0mm x 54.0mm
Displacement 738.0cc
Compression ratio 9.0:1
Carburetion ..... four 34mm Keihin constant-velocity
Air filter ..... disposable paper element
Lubrication ..... wet sump
Starting system ..... electric only
Ignition ..... transistorized breakerless
Charging system ..... 12-volt: alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... straight-cut gears
Primary drive ratio 2.55:1
Final drive type ..... #530 chain (5/8-in. pitch, 3/8-in. width)
Final drive ratio 13/33: 2.54:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.33	15.09	5.1
II	1.63	10.56	7.2
III	1.27	8.23	9.3
IV	1.04	6.74	11.3
V	0.88	5.70	13.4

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air-spring, 36mm stanchion tube diameter/5.8 in. (147mm)
Rear ..... 5-way adj. spring preload, 4-way adj. rebound damping/4.0 in. (102mm)

BRAKES

Front ..... dual single-action hydraulic calipers, 10.2-in. (260mm) discs
Rear ..... double-action hydraulic caliper, 10.2-in. (260mm) disc

TIRES

Front ..... 3.25H19 Dunlop Gold Seal F-8
Rear ..... 4.00H18 Dunlop Gold Seal K-127

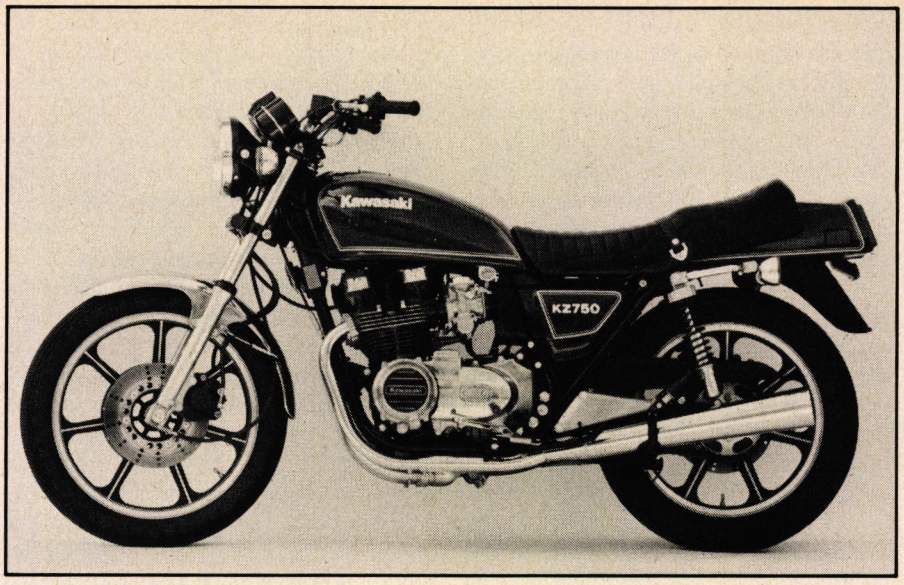
DIMENSIONS AND CAPACITIES

Weight ..... 471 lbs. (213.6kg)
Weight distribution ..... 46.0% front, 54.0% rear
Gross vehicle weight rating ..... 864 lbs. (391.2 kg)
Wheelbase ..... 56.0 to 57.1 in. (142.2 to 145cm)
Seat height ..... 31.3 in. (795mm)
Handlebar width ..... 30.0 in. (762mm)
Footpeg height ..... 12.8 in. (325mm)
Ground clearance ..... 6.3 in. (160mm), at exhaust pipe
Steering head angle ..... 27.0 degrees from vertical
Front wheel trail ..... 4.21 in. (107mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity ..... 3.7 qt. (3.5 l)
Fuel tank ..... steel, 4.3 gal. (16.4l), including 0.8 gal. (2.9 l) reserve
Instrumentation ..... speedometer, odometer, tripmeter resettable to zero, tachometer, voltmeter

PERFORMANCE

Fuel consumption ..... 39 to 50 mpg (16.6 to 21.3 km/l)
Range, maximum ..... 168 to 215 miles (272 to 349 km)
Range, reserve only ..... 31 to 40 miles (48 to 62 km)
Speedometer error, 30 mph indicated ..... 30 mph actual
Speedometer error, 60 mph indicated ..... 61 mph actual
Best ¼-mile acceleration ..... 12.50 sec., 107.8 mph (174 kph)
Top speed (calculated) ..... 127 mph (205 kph)
Stopping distance from 30 mph ..... 32 ft. (9.8 m)
Stopping distance from 60 mph ..... 134 ft. (40.8 m)

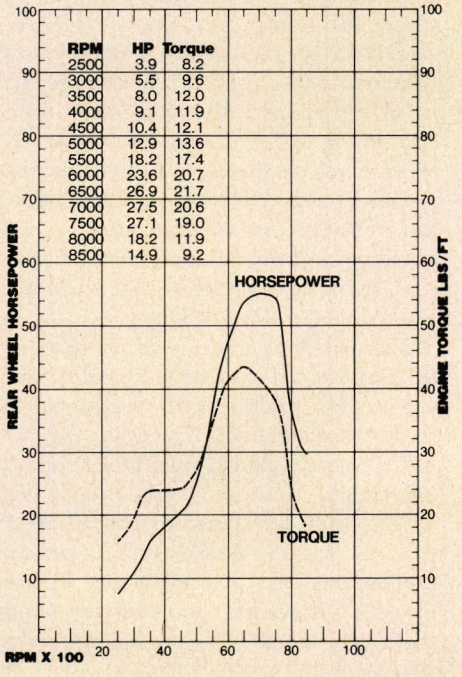
All weights and measurements are taken with machine unladen and fuel tank empty.

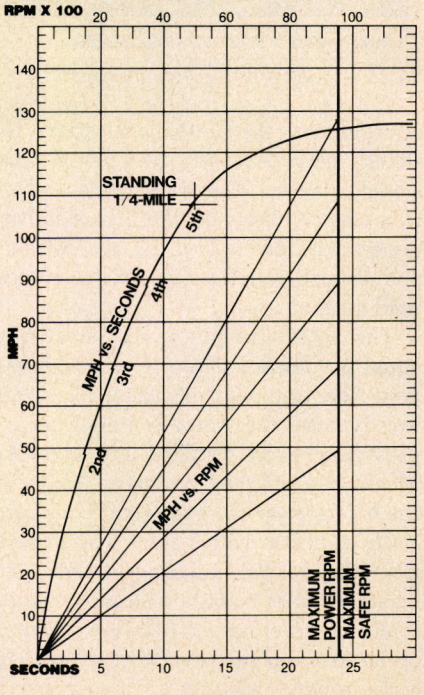


COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Kawasaki KZ750/4	12.50/107.7	127	471	134
Honda CB750F	12.41/106.8	128	524	135
Suzuki GS750EC	12.57/105.6	120	509	133
Kawasaki KZ650 Custom	13.16/100.2	116	483	125
Kawasaki KZ1000 MkII	12.06/110.3	130	545	129
Suzuki GS1000EC	12.15/110.9	131	520	126

PERFORMANCE:





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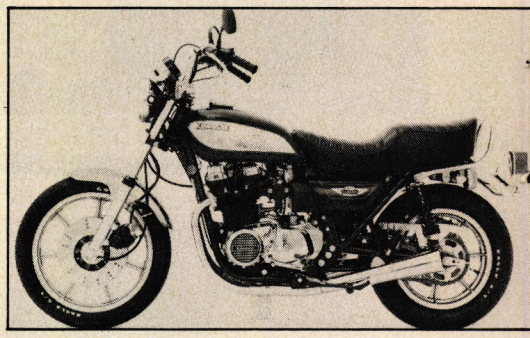
SQUIRTING THE ISSUE:

Kawasaki's Electronic Fuel Injection



A Classic case of giving an engine what it needs, not what it wants. BY L.J.K. SETRIGHT

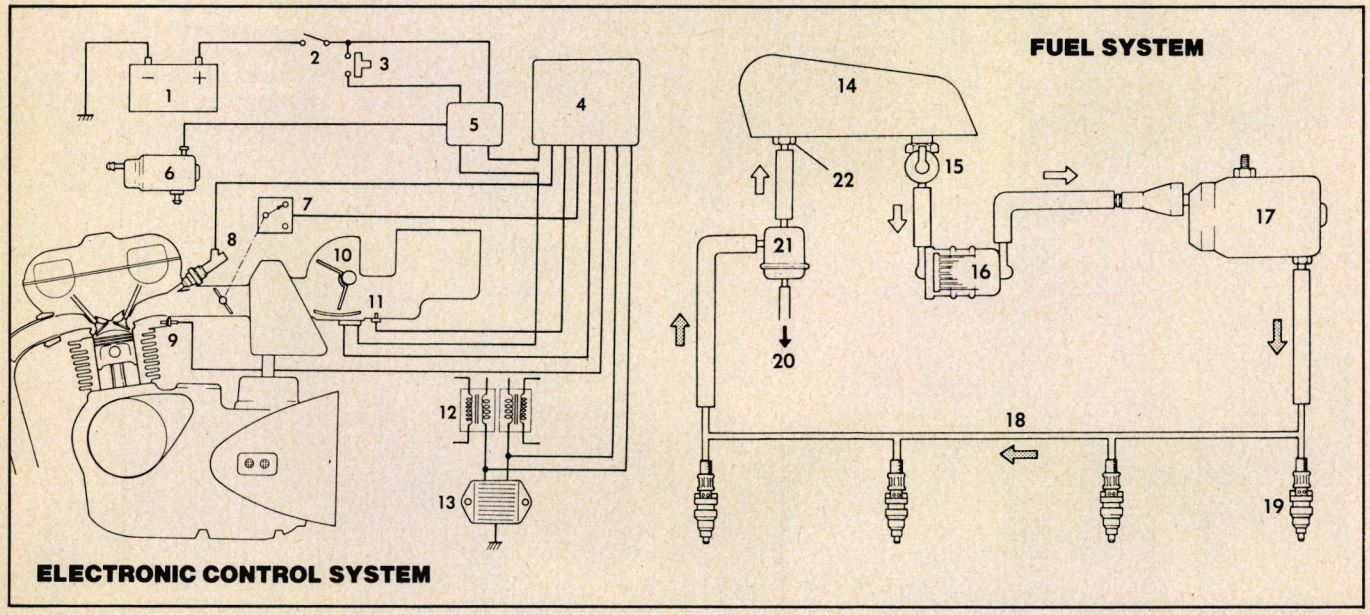
• It's about time that a fuel-injected motorcycle was offered for general public consumption. After all, mass-produced fuel-injected automobiles—from Detroit, no less—were available nearly a quarter-century ago, and any large number of injected four-wheelers can be had even as you read this. So while the news that Kawasaki has at long last pioneered fuel injection on a motorcycle surely will not rock the foundations of the motorcar industry, for people of the two-wheeled persuasion it is no less than a monumental achievement.

Kawasaki's system is called EFI, which stands for, predictably enough, Electronic Fuel Injection, and it currently is offered only on one model in the U.S., the limited-production KZ1000 LTD Classic. EFI is by no means, however, the first injection system ever seen on a motorcycle. To cite two examples, Yamaha had injectors years ago on its touring prototype of the TZ750 two-stroke and Honda used injectors on some RCB endurance-racing bikes in 1979. But the motorcycle industry has been in no hurry, being less upset than the auto industry by emissions regulations. And so it has been left to Kawasaki to be the first into production with fuel injection, certainly a more meritorious move than merely jumping on the four-valve-per-cylinder bandwagon.

Clearly, the Kawasaki EFI system is the offspring of European parents—Mikuni by Bosch out of Jackson through Tecalemit. You see, Jackson was an engineer working with the Tecalemit firm which, despite being neither big nor powerful, had a tidy business doing pneumatic and hydraulic thingummies for the aviation and car industries. That was before Tecalemit sought diversification with the aid of Jackson's studied enthusiasm for fuel injection. Eventually the company gave up, just as Jackson had hit upon his best notion, which he was left to pursue alone in the late Sixties. That notion was a means of doing what no injection apparatus had done, a means of actually and directly measuring the air-mass flow.

Jackson did this with the aid of two throttle butterflies in series, a spring-loaded one being set some distance upstream from the other that was controlled by the driver. The space between became a plenum chamber analogous to the corresponding tract in a constant-depression carburetor (like the SU and all its imitators from Stromberg to Keihin) but truer and faster-reacting. Movement of the upstream flap provided a measure of the air passing through, from which it was easy to deduce the right dosage of fuel.

Britain's miserable motor industry did not want to know, and Jackson was bitterly disappointed; but he grew more bitter



1. Battery 2. Ignition Switch 3. Starter Button 4. Electronic Control Unit: receives various signals from sensors and controls open duration of injectors. **5. Relay:** controls power supply to fuel pump and Control Unit. **6. Fuel Pump 7. Throttle Valve Switch:** signals idle and full-load positions of throttle valves to Control Unit. **Throttle Valves** open control air flow into engine **8. Fuel Injectors 9. Engine Temperature Sensor 10. Air Flow Meter:** measures rate of air flow into engine and signals engine; contains air temperature sensor and fuel pump contacts. **11. Air Temperature Sensor:** measures temperature of air flowing through air flow meter and signals Control Unit **12. Ignition Coils 13. IC Igniter 14. Fuel Tank 15. Fuel Tap 16. Fuel Filter 17. Fuel Pump 18. Fuel Distributing Pipe 19. Fuel Injector 20. To Intake Manifold 21. Pressure Regulator:** controls pressure in fuel line. **22. Check Valve**

still when he learned that Bosch had pinched his idea and gone into business with it. Bosch eventually paid up when taken to court, but as far as the world of motoring is concerned, Bosch was responsible for injection systems suddenly becoming far better than before, and far better than carburetors in the bargain.

Kawasaki's injection is a Mikuni-built version of that Bosch-borrowed, Jackson-Tecalemit system that is, for all intents and most purposes, simply a compact rendering of a system used on several automobiles, including Mercedes, BMW, Porsche and VW. From a filtered intake under the seat, incoming air shoulders its way past a spring-loaded flap, through a plenum chamber that Kawasaki describes as a "surge tank," and then into the inlet tracts of the four cylinders, each with its butterfly throttle linked to the rider's twistgrip. The flap upstream works a transducer that signals the air flow to an electronic control unit (ECU), yet another "little black box" under the seat. Other signals also reach the ECU electrically to complete the input of information that it needs: Engine speed is inferred from the ignition coils; air density from a temperature sensor located in the airflow meter; the need for cold-starting enrichment from a temperature sensor in the cylinder head; and the need for maximum-power enrichment from a switch on the throttle shaft that signals when the throttles are wide-open. The same switch also indicates when the throttles are on their idling stops, and a starting signal is picked up from the output side of the starter relay.

Given all this information, the ECU can compute precisely how much fuel should, for any given situation, be injected through the nozzles aimed downstream at the inlet ports. All four nozzles are fed filtered fuel at a steady 36 psi; the quantity of fuel they pass is metered by holding the nozzles open for as long as they receive the appropriate electrical current from the ECU. It is as easy as that. And the fuel dose is physically superior to the discharge from a carburetor, having been finely atomized for better combustion. Better still, it does not corrupt throttle response by its inertia as in a carburetor; there is no lag in starting or in accelerating, no need for wasteful accelerator pumps, and the response to a closed throttle is as positive as to an opened one. What's more, even if the engine's air consumption varies because its internal parts become worn past acceptable tolerances, the metering system automatically takes this into account and adjusts the fuel dosage accordingly. Given all of that, if Kawasaki's EFI does not also ensure better fuel economy, a cleaner exhaust and higher overall bmep, it will be less good than it really should be.

No less intriguing than the EFI's electronics is its fuel system. The fuel supply is pressurized by a little motorized rotary pump, with a pressure regulator at the far end of the line that dumps excess fuel back into the tank. A vacuum line from the regulator to the inlet manifold trips this valve to clear the circuit when the engine stops. Of course, there is nothing special about these details, but there certainly is something unique about the fuel delivery: Each injector functions twice per cycle. All four injectors are wired in parallel and so all are triggered simultaneously by the single electrical pulse that is sent once every 360 degrees of crankshaft rotation. It was long ago established, in experiments made by BRM on its championship-winning 1.5-liter Grand Prix V-8, that the actual moment when injection occurred relative to inlet-port timing was unimportant: It could be half a cycle out of phase with impunity. Shortly afterward, Honda was running its own continuous-spray system in a racing car engine, and Jackson did likewise. And Kawasaki's intermittent timed injection, as applied to the new LTD Classic, makes the most of these findings to attain a new level of simplicity that makes the carburetor quartet look a clumsy alternative.

That is an unexpected turn of events, for theory has always held that while fuel injection gives an engine what it ought to have, a carburetor allows it to take what it *wants*. The distinction is a lovely clear one, and it used to be true. In the good old days before emissions controls, carburetors were nice and simple, and the simplest were the nicest. And none of the early injection systems, despite their various complexities, managed to do what the carburetor did naturally, which was to accurately measure the air flow and apportion the fuel accordingly.

As defined by Kawasaki's EFI, then, injection still gives an engine what it should have, but emissions laws have redefined the carburetor: It is now an instrument that *prevents* the engine from taking what it wants. Heavier with gadgetry and less responsive in each successive year, the carbs of the future can enjoy little welcome if Kawasaki's or anybody else's EFI is available. Think how readily EFI could share circuitry with fully computerized electronic ignition to modulate a similarly ideal advance curve. If you can see that, you should also see that the engines of a few years hence could be remarkably well-behaved, indeed. •

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TRACK TEST:

Honda CR250R

Keeping the same target as last year's CR250 Red Rocket, Honda fires a new salvo: Meet the Retrorocket.

BY DAVID DEWHURST

Sometimes, improvements can spoil a really good motorcycle. Like Honda's new and improved CR250R, for instance. It's a textbook example of how a frontrunner instantly can become a backmarker with a few well-intentioned but misdirected model-year refinements. Granted, this newest 250 Elsinore *looks* the part of the modern-day motocross racer right down to an FIM-number-plated T. But in certain all-important performance aspects, it's not as good as last year's CR250—or, for that matter, as good as what people were riding four or five years ago, back when engines were hot and suspensions were not.

Not coincidentally, the king villain here *is* the suspension, and for various reasons, depending on which part of which suspension you're talking about. Too-stiff spring rates do the dastardly deed in one area, while insufficient damping and excessive preload are the culprits in others. Whatever the causes, though, the result is individual wheel rates that are grossly mismatched, not just to one another, but to the demands of contemporary motocross.

Compounding the suspension's inadequacies is the steering geometry, another supposed improvement for 1980. The CR got a double-downtube frame (as opposed to single downtubes on all CR250s since the first one in 1973) that promises greater rigidity and, through slightly different geometry, quicker steering. But while the frame undoubtedly *is* more rigid, the quickened steering seems to cause as many problems on this bike as it cures. Moreover, despite the presence of an impressively wide and unusually torquey powerband on the new motor, its effectiveness is undercut somewhat by a set of gear ratios left over from last year's higher-revving CR250 powerplant.

Neither the gear-ratio mismatch nor the steering geometry would, however, be sufficient to render the CR250R ineffective on its own. A rider could adapt to the steering quirks, and a change in final gearing would improve the engine-to-gearbox relationship. But what could *not* be adjusted to, no matter what the riding style, is the suspension. Because no matter how you look at it, the suspension simply doesn't work. The fork has too much spring preload and too little damping, so it behaves not unlike a double-barrelled pogo stick. And the shocks, which also have insufficient damping, are further penalized by excessively stiff main springs that cause the rear end sometimes to kick up wildly and always to be skittery.

What's most unusual about all of this is that half of the suspension—the fork—essentially is last year's fork with a few unrevolutionary changes. Although the travel was kept the same at 11.6 inches, the slider legs and stanchion tubes both were increased in length to provide 30mm more overlap at full extension. No problem here, for all that does is reduce binding as the fork compresses during the first few inches of travel. There also are air caps on the fork this year, and the lesser of the fork's dual spring rates is slightly softer but preloaded a bit more. Finally, the rebound damping is seven-percent lighter.

At the rear, the changes were much more extensive. The chromoly steel swingarm was lengthened 15mm, the bottom shock mount moved 2.5mm closer to the arm's pivot, and last year's unreservoired gas-emulsion Showa shocks gave way to a pair of attached-reservoir units from the same company. The new shocks have two-way-adjustable rebound damping and a gas-charging system in which a thick neoprene diaphragm separates the high-pressure nitrogen from the damping fluid. And supporting the whole business are two individual single-rate springs on each shock; a short and lightly preloaded one controls initial wheel movement, and a larger main spring cushions the remainder with the aid of a large urethane bump-stop designed to prevent severe bottoming at the end of the 11.7 inches of travel.

Despite what this revised suspension may promise, however, it makes Honda's red rocket ride and handle like a runaway red beach ball. The CR skitters and bounds and bounces around the track in an unpredictable fashion, hampering fast lap times and speeding up rider fatigue. Every one of our testers returned from his first ride on the CR shaking his head, unable to believe that he had just ridden a 12-inch-travel motocrosser of the Eighties and not a short-travel refugee from the mid-Seventies.

Most of the problems stem from the rear suspension's main shock springs, which seem to have come from a Peterbilt warehouse. Regardless of their origins, though, they certainly are strong enough to support something a lot heavier than the CR250R. The lightest of each shock's two springs works nicely on smaller bumps, giving a soft initial travel. But the rear end seems almost to go solid as the light spring becomes coil-bound and the main spring comes into play. So when the CR hits a hole or sharp bump, the back end either kicks up and down or hops side to side or does both, depending upon its attitude at the time of impact. On one occasion, in fact, the kick caused by hitting a sharp step on the track surface sent the CR into a terrifying top-gear endo that luckily didn't hurt the rider. That same obstacle could be hit without incident by a Suzuki RM250T and a Husky 390 we had along during the test. Moreover, the Honda's rear-end handling problems were aggravated by the light rebound damping, for once that heavy spring did get compressed, the shock would rebound quickly enough to vault the rear end skyward.

To a lesser extent, the front end suffered similar problems. With a lot of preload and not a lot of damping, the fork would extend too quickly and therefore tend to set up a pogo frequency of its own. On one set of whoop-dee-doos in particular, the bike would sproing off of the first one, crash down in the trough between the two and then uncoil over the second almost without making any wheel contact with the ascending face of whoop No. 2.

This same leaping-about also made it difficult to point the bike accurately into a corner, especially one with a narrow berm,

where extreme accuracy was called for. The whole cornering business would then become like a motorized game of Russian roulette: As we would dive into some corners, things sometimes would click, and on others everything would explode in our faces. Unfortunately, it seemed we had as many explosions as clicks, for the bike hopped and bobbled wide of turns as often as it didn't. On the joyous occasions when the CR *did* hit a berm squarely, it often bounced back on its underdamped suspension after making initial contact, then tried to climb up and over the outer berm wall, often successfully.

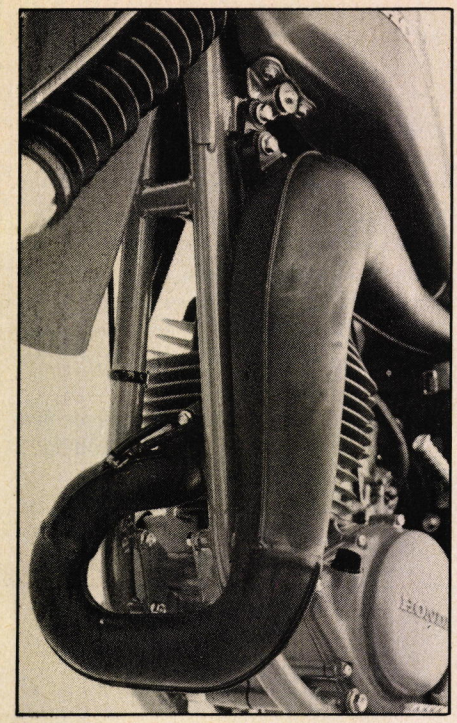
The only way we managed to inhibit the fork's return speed was to let out all the air, which lessened the preload. But then the fork bottomed much too often to be really effective. We did, however, manage to effect a small improvement in the CR's suspension with a bit of fine-tuning and the aid of some borrowed parts. Our first move was to drain the 290cc of stock 5-weight oil and replace it with 310cc of Bel-Ray 10-weight. That stiffened the compression damping more than we wanted, but it also firmed up the rebound damping enough to slow down the pogo effect of the fork. And with eight psi of air working in concert with the higher oil level, bottoming was held to a reasonable minimum. Still, the fork left a lot to be desired, thanks to its excess of spring preload and high ratio of compression-to-rebound damping.

With the fork working better, we turned to the rear end and threw away the stock 136-pound-rated main springs in favor of 124-pounders from a 1980 CR125R. With the rebound damping set in the hardest of its two positions there was a noticeable difference—*too* much of one, as it turned out, because the 125's springs were a bit too light for the 250. But at least they allowed the full travel to be readily used for the first time, and so the rear wheel stopped kicking up so strongly. Unfortunately, the Showa shocks still were underdamped, even with the soft springs fitted. Aftermarket shocks seem the only answer to this problem, as do a set of alternative springs and damper rods for the fork.

But while the suspension did behave better in its tuned mode, the CR still had a steering quirk, an ever-present tendency to sit upright when leaned over in a corner. Blame part of that on the '80 CR's quicker

Continued

PHOTOGRAPHY BY DAVID DEWHURST



Twin tubes for greater rigidity

Swinging along in a double cradle.

steering geometry (half a degree steeper head angle and 4mm less trail) and blame the rest on a higher center of gravity imposed by locating the engine a bit higher in the new frame for more ground clearance. This inclination not to be inclined was felt most often on slow, tight turns or when rim-riding a corner out on the berm. In either case, the CR constantly felt as though someone were on the outside of every corner tugging away at the bike with a bungie cord. The quick steering tells the motorcycle to go around sharp corners quickly, but the relatively high center of gravity makes it want to sit up in the process. And once you do get the CR to turn sharply, it wants to continue doing so as you exit the corner, necessitating a firm tug on the handlebar to straighten it out.

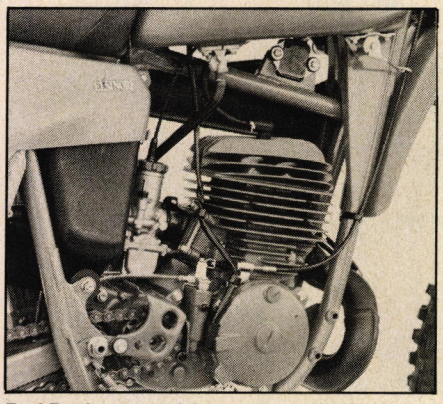
What's more, the combination of quick steering, relatively short wheelbase and oversprung suspension made for some interesting, if not entertaining, trips down fast, bumpy straights. The Elsie showed a twitchy dislike for the fast-and-rough, wagging its handlebar in protest just about every time it encountered those kinds of track conditions. A rider can counteract the CR's twitchiness and learn to deal with its highside tendencies, but that takes extra effort and concentration, two things not always available at the end of a moto.

We managed to inject our CR with a little bit of steering precision by swapping the standard Bridgestone tires for a set of SoCal-proven Metzelers. The CR then would track better, and it even became enjoyable to ride on smoother sections of the track and through some fast, sweeping turns. The Honda still is the same first-rate powerslider that its predecessors were, provided that it's not asked to get all crossed-up on a bumpy turn.

Those Metzelers also helped the CR put more of its power on the ground. That was an important move because if the bike does nothing else well, it does churn out an impressive lot of highly usable, exceptionally tractable power. Surprisingly, though, not much has changed within the CR's reed-valve two-stroke, just a few subtle refinements that have produced much stronger midrange performance.

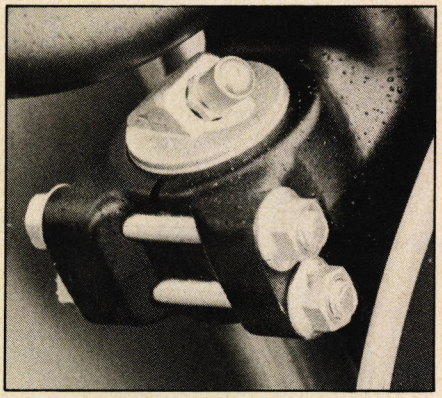
The most obvious change is to the barrel, which now has a central exhaust port that routes the exhaust header pipe through the new double-downtube frame. Apart from that, things are pretty much as before. Oh, the exhaust window is 0.75mm narrower than that on last year's engine, and the vertical bridge that bisected the inlet port is gone, but that's about the extent of the internal changes. And so the broader power curve has been achieved simply and inexpensively by altering the ignition's advance curve and rethinking the dimensions of the exhaust system. By carefully altering these two components, Honda's engineers have dropped the peak power rpm by 500 revs and given the engine stronger midrange without losing any maximum horsepower at all. That such radical changes in performance can be achieved so subtly shows just how important the ignition and exhaust system are on a modern two-stroke.

Utilizing the impressive new powerband to the fullest requires that you keep the motor pulling in the midrange, almost like on an Open-classer. Revving past maximum horsepower rpm only results in a sharp drop-off of power that will allow your competition to outrun you. But when ridden in the middle of its rpm range, the CR will hook up and move out at least as well as any 250 on the track and better than the vast majority of them. There's a minimum of wheelspin, despite the rear suspension's problems, and crisp, in-



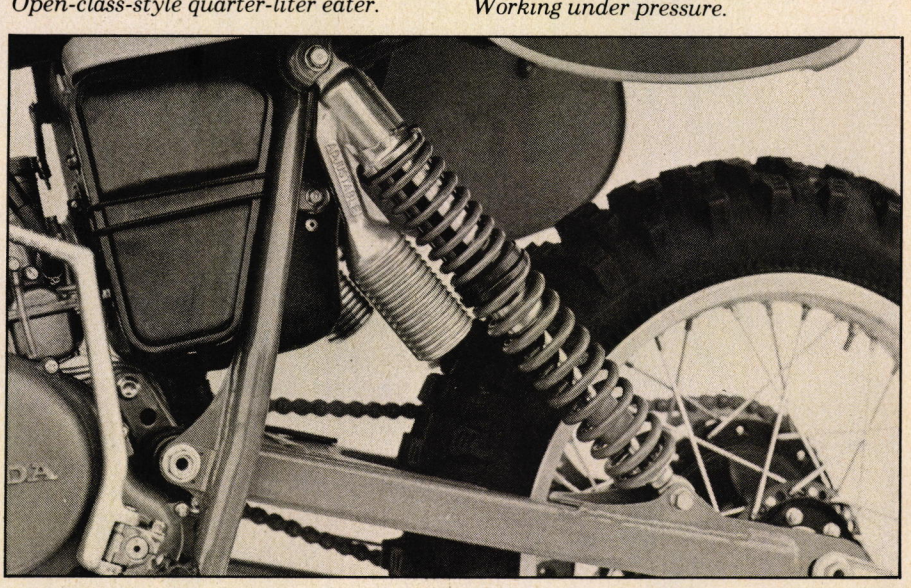
Red Rocket propulsion pack

Open-class-style quarter-liter eater.



Aircap adjustability

Working under pressure.



Adjustable Showa shocks with gas in reserve

A potentially good move overridden by a bad choice of springs.

stantaneous throttle response is on tap anytime the twistgrip is snapped open.

If there's anything to fault about this admirable engine, it's that the gearing is so low that as delivered, the ratio spread doesn't best utilize the torquey powerband. By comparison, an RM250T Suzuki, also one of the lower-revving 250-class racers, can go as fast in fourth gear as the Honda can in fifth. Swapping the stock 14-tooth countershaft sprocket for a 15 would help broaden the ratio spread, but first gear then would be a bit tall for consistent holeshots on the start. Ideally, the 1980 CR should have gear ratios mated to the new powerband, not those left over from last year's higher-revving engine.

Despite its ratios, though, the CR's engine is very easy to live with, as are the remaining areas of the machine that have no direct connection with its handling. The brakes are powerful and yet not prone to inadvertent locking, and both the seated and stand-up riding positions are spot-on for most riders. The handlebar is wide, the seat soft and their relative positions just about right for the average American rider.

Speaking of America, it's interesting to note that the CR250R is assembled in Honda's Columbus, Ohio factory, and that many of its chassis parts are made in this country. Included in that list is the 2.3-gallon gas tank, which not only is the CR's inaugural plastic tank, but the first one to have a reasonably sized filler opening, as well.

Actually, therein lies the essence of the CR's problems. If the bike had proper suspension, the gas tank wouldn't have had to survive all of those crashes, for most of them wouldn't have occurred. But occur they did. And because of the frequency of those get-offs, not one of our testers ever felt comfortable riding the CR, and one of them openly *avoided* riding it.

None of this, of course, is to say that the Honda isn't ridable, only that it is extremely difficult to ride at competitive speeds for the duration of a long moto. Nor is the message here that the CR is unfixable, for a knowledgeable tuner with a generous parts budget could turn the powerful CR into a fiercely competitive racer in no time flat. But why would anyone bother? There are showrooms from coast to coast brimming with much better 250cc motocrossers, bikes that are ready to roll out the door and into victory circle with little more attention than attaching the numbers and filling the gas tank.

Considering that state of affairs, it's unlikely that the new CR250R will enjoy much success this year, either on the track or in the showroom. What went wrong between the designer's drawing board and the finished product is uncertain, for Honda surely didn't *try* to build an incompetent motocross machine. What is certain, though, is that with the CR250R, Honda has proven beyond a shadow of a doubt that an improved motorcycle is not necessarily a better one. •

Ride Review

• As a former Honda CR250R owner, I expected the gates of heaven to open before me as I mounted the brand new version. With its new engine, featuring a center exhaust port, and a new double downtube frame, I thought this had to be the race bike of my dreams. It was. Too bad the dream turned out to be a nightmare.

I had been aboard the Honda for only four minutes or so before it introduced me to Mother Earth. And before our evaluation was complete, old Mom Earth and I became very well acquainted.

My first problem with the new CR came when I found I couldn't control the front end. It bounced around and went anywhere it wanted to. And that didn't mean the rear end of the bike would follow, either. It seemed as if the back end with those twin pogo-stick shocks spent more time passing directly overhead than it did on the ground. And along the way, the bike and I invariably parted company.

This is one motocross test that I'm glad to see the end of. I spent so much time on the ground recently, that my sore muscles feel as if I'd aged 30 years in just three days. I've learned a lot in that time, enough to make me wonder if Honda's forgotten what it learned in the past 30 years.

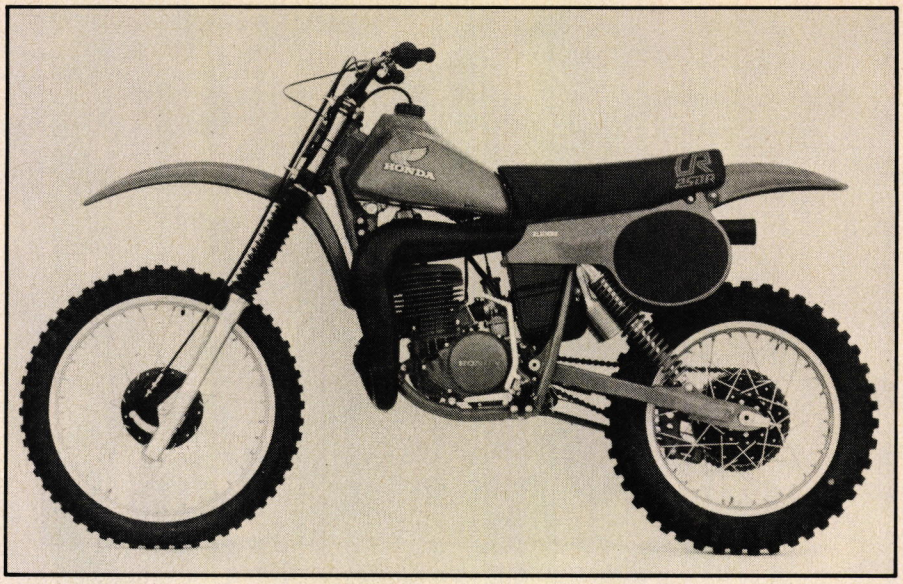
—Dean Taylor

• Suddenly it was 1975 all over again, and I was floundering hopelessly on a bone-jarring, wheel-hopping, short-travel motorcycle that was intent on going where *it* wanted, not where I pointed it. The only trouble, though, was that it was 1980, not 1975, and the motorcycle I was sparring with was a brand-new, long-travel CR250R. But if I had used just the handling of that motorcycle as a barometer of the year I was in, I never would have guessed that it was 1980.

I almost could be made to believe that in actuality, this CR is a '78 or '79 model and that the one I rode last year really is *this* year's upgraded new model. Because in most performance categories other than power output, the '79 CR is a better motocrosser than the '80 version.

Don't ask me how or why it got that way, because I don't know. Maybe Honda's Great Computer spun a main bearing, or perhaps the company's test riders do their testing on racetracks unlike any I've ever seen. All I know is that I can't ride this Honda worth a damn, yet I can step off of it and right onto something else and at least *look* like I know what I'm doing. That's why this CR250R is one test bike that I'm not going to miss one little bit. *—Paul Dean*

Honda CR250R



SPECIFICATIONS:

IMPORTER: American Honda Motor Co.,
100 W. Alondra Blvd.
Gardena, California 90247

CATEGORY: motocross

SUGGESTED RETAIL PRICE: $1798

ENGINE

Type ..... two-stroke vertical single
Port arrangement ..... one reed-valve-controlled intake, four transfers, one booster transfer, one exhaust
Bore and stroke ..... 70.0mm x 64.4mm
Displacement 247.8cc
Compression ratio (corrected) 7.3:1
Carburetion ..... one 36mm Keihin slide/needle
Air filter ..... washable oiled foam element
Lubrication ..... pre-mixed fuel and oil
Starting system ..... primary kick
Ignition ..... flywheel-magneto CDI
Charging system ..... none

DRIVETRAIN

Primary drive ..... straight-cut gears
Primary drive ratio 3.25:1
Clutch ..... wet, multi-plate
Final drive type ..... #525 chain (5/8-in. pitch, 5/16-in. width)
Final drive ratio 14/49: 3.50:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	1.90	21.61	3.7
II	1.59	18.09	4.4
III	1.24	14.11	5.6
IV	1.00	11.38	7.0
V	.84	9.56	8.3

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... air/spring, 37mm stanchion tube diameter/11.6 in. (295mm)
Rear ..... 2-way adj. rebound damping, 5-way adj. spring preload/11.7 in. (297mm)

BRAKES

Front ..... drum, single-leading shoe
Rear ..... drum, single-leading shoe, rod-operated

TIRES

Front ..... 3.00 x 21 Bridgestone Motocross M17
Rear ..... 5.10 x 18 Bridgestone Motocross M20

DIMENSIONS AND CAPACITIES

Weight ..... 222 lbs. (100.6kg)
Weight distribution ..... 47% front, 53% rear
Wheelbase ..... 56.3 to 57.5 in. (143 to 146cm)
Seat height ..... 36.4 in. (925mm)
Handlebar width ..... 33.5 in. (851mm)
Footpeg height ..... 16.5 in. (419mm)
Ground clearance ..... 12.5 in. (316mm), at frame cradle
Steering head angle ..... 28.25 degrees from vertical
Front wheel trail ..... 4.5 in. (114mm)
Frame ..... tubular chromoly, double front downtubes
Fuel tank ..... plastic, 2.3 gal. (9/) no reserve
Instrumentation ..... none

PERFORMANCE

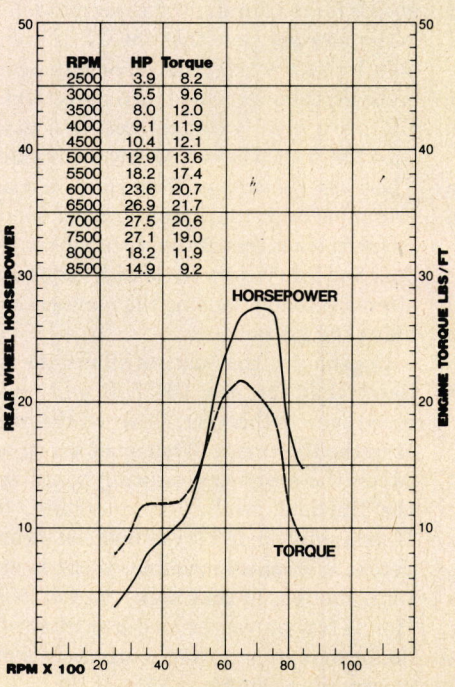
Top speed (calculated) ..... 65 mph (105 kph)

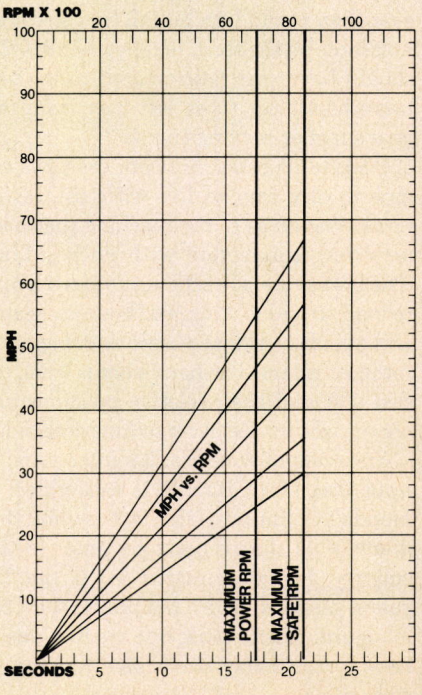
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make & Model	Horsepower	Wheel Travel Front/Rear, in.	Weight (fuel tank empty), lb.	Weight bias Front/Rear percent	Transmission, number of speeds
Honda CR250R-79	27.7	11.8/11.0	220	45.9/54.1	5
Honda CR250R-80	27.5	11.6/11.7	222	47/53	5
Yamaha YZ250G	29.6	11.2/11.6	217	46.5/53.5	6
Can-Am 250 MX-5	32.1	10.8/10.0	218	45.9/54.1	5
Husqvarna 250CR	24.3	11.8/11.8	227	44.5/55.5	5
Suzuki RM250N	27.1	11.2/11.8	218	46.3/53.7	5

PERFORMANCE:





PRODUCT EVALUATION:

Swel Leg Savers

Answering the question no one ever asked —surprisingly, with a right answer.

• All right, take out a clean sheet of paper and put your books on the floor. First question: What piece of motorcycle gear is sure to net you more behind-the-back snickers than an open fly, looks like it arrived via the court of Louis XIV and costs you $68? Answer: Swel Leg Savers. Second question: What piece of gear is waterproof and windproof, is taken off and put on in a trice and is surprisingly useful? Answer: See first question.

What we've got here, friends, is your basic anomaly, to be filed under Mysteries I Have Known. As proof of that, the entire hard-bitten staff of *Cycle Guide* guffawed *en masse* when they first saw these, er, leggings. But everyone who rode with them ended up admitting that they work.

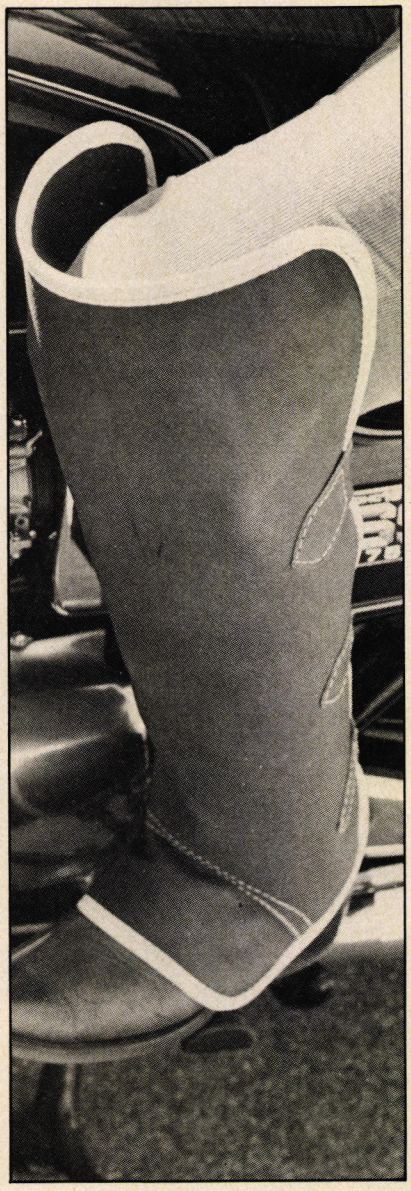
Why they draw giggles isn't hard to figure, vanity being what it is. But why they work isn't much harder to understand; you just have to try them. You see, chaps in various forms have been around since long before the beast under the saddle sucked gasoline. Back when OPEC stood for Oat Producing and Exporting Countries. And what chaps do hasn't changed a whit since back then; they either save your legs some grief or they're so much extra baggage. That's all common knowledge, but what's odd about the Swel Leg Saver is that it more or less answers the question that nobody ever asked: Why do you need a chap that protects only your lower leg?

Well, to be fair, the chaps cover more than just from the knee down. The Leg Saver is 22 inches tall, and when you're sitting in a riding position, the top of it flares out like the knee guard on a regimental cavalry boot. There's a smaller flare at the bottom, too, that covers the top of your foot. And when you strap the things on over a pair of shoes, *voila*, you've got instant boots. Which is Swel's answer to the question.

Aside from their unique appearance, the chaps seem only to have gone astray in how the straps work. Each legging carries three straps; each strap is sewn on one side, with a patch of Velcro on the other. But when the straps are in place, the tips point forward—in just the right place to catch on a rock, tree or some other off-roady item. So what you've got are chaps designed for the urban cowboy. All of which I thought was a hair strange until I stopped to consider it. Because here I had this tough, top grain steerhide chap, and it had picked up a fair share of scratches and scuffs during its testing. And not only was my leg unscathed, I hadn't felt a thing.

You can get more information on Leg Savers from Swel Products, 2728 Huntington Drive, Duarte, California 91010.

—Larry Works

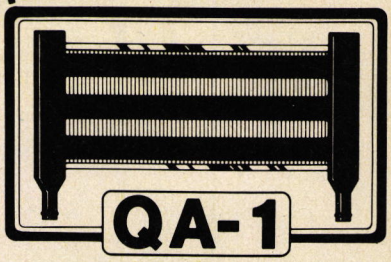


Leg Savers' undeniable flare

Instant flair for the cavalry crowd.

DERALE OIL COOLERS

NEW World's Finest Oil Cooler With Built-In Thermal Control Valve



The World's Finest Oil Cooler built in Thermal Control Valve prevents over cooling automatically.

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Z1R,KZ900,KZ1000	$79.95
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XS750	$79.95
XS1100	$79.95
BMW	
R75/6,R90/6,R90/S	$79.95
R75/7,R100/7,R100S, R80/7	$79.95
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850-T3	$79.95
HARLEY, BSA NORTON, TRIUMPH	$74.95

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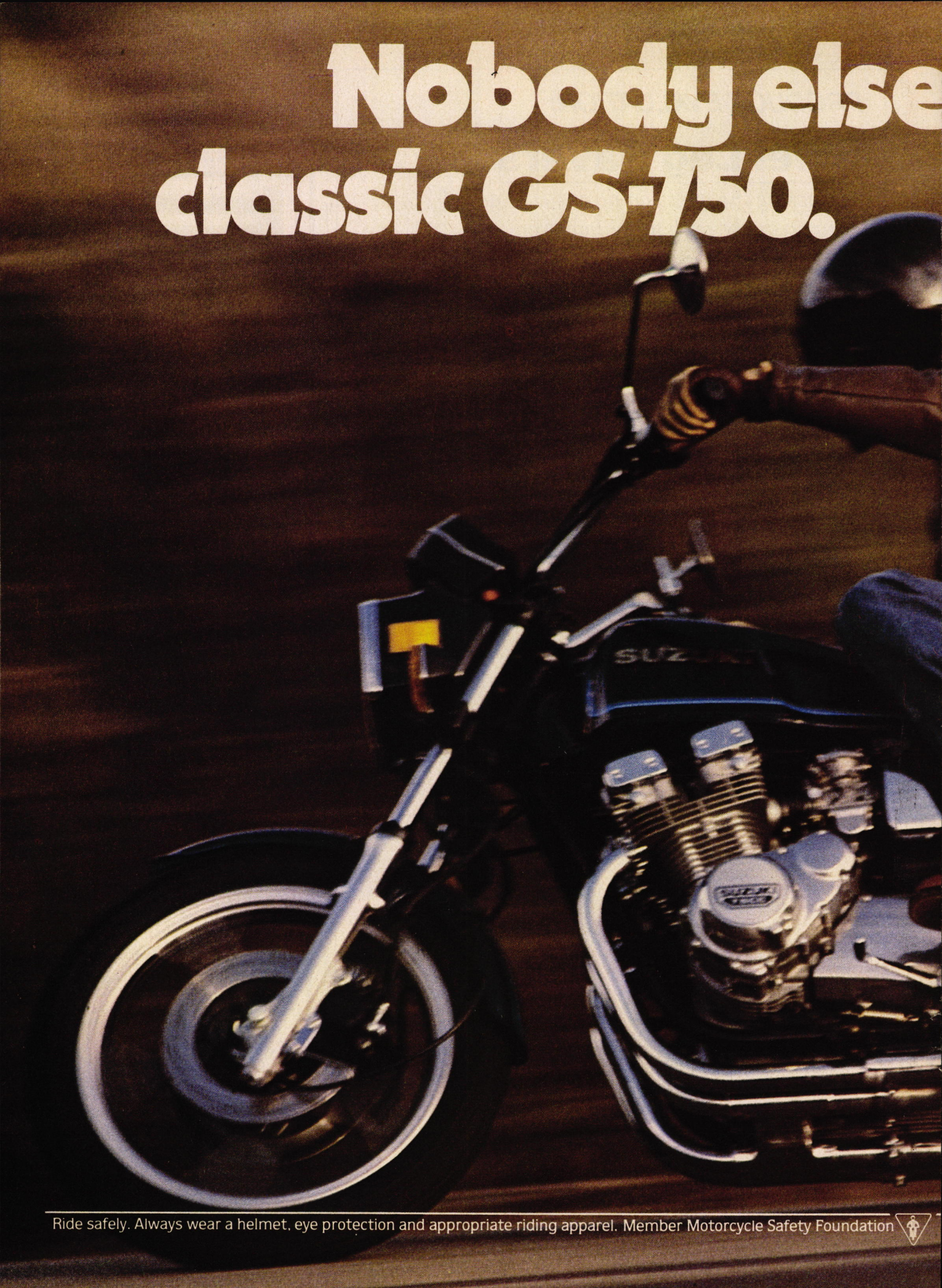
Nobody else
classic GS-750.
SUZ
Ride safely. Always wear a helmet, eye protection and appropriate riding apparel. Member Motorcycle Safety Foundation

could surpass our
So we did.
Leave it to Suzuki to make a classic bike even classier.
Take the engine, for example. Our new GS-750E uses a unique 16-valve head 4-stroke with a patented TSCC design.
What's TSCC? Well, it's engineer talk for Twin Swirl Combustion Chamber. In everyday talk, it means fuel is burned quicker and more efficiently.
Result: This advanced engine produces more power than conventional 4-stroke mills. Bar none.
Of course, there's more to this bike than a hot new engine. Triple disc brakes are slotted. Ignition is transistorized. Carbs are constant velocity. And steering utilizes tapered roller bearings.
Want more? Ok, it also comes with a custom saddle, Halogen headlight, high-performance tires, and the sweetest handling suspension in its class.
Also, like all 1980 GS models, our new 750 is backed by a 12-month unlimited mileage warranty.*
That's pretty classy in itself.
SUZUKI 1980
SUZUKI
The Performer.
1980 GS Model
TWELVE-MONTH UNLIMITED MILEAGE WARRANTY*
*See "Limited Warranty" brochure for details. This warranty furnished only in the 48 contiguous United States and Alaska.

RIDING IMPRESSION:

San Jose BMW's R100S Sport Pac

It only takes $14,000 to buy the ultimate BMW.

BY DAIN GINGERELLI

PHOTOGRAPHY: DAVID DEWHURST

Here's a way to save $14,000. Don't ride San Jose BMW's R100S Sport Pac. If you do, prepare to search the depths of your bank account for a means to fill in the zeroes on the check it'll take to buy it.

San Jose BMW knows 14 grand is a large lump of money for a motorcycle, but no one there really expects many people to buy one. The Sport Pac was built to incorporate every piece of sport/touring hardware San Jose BMW offers to transform any post-1973 BMW into a total high-performance cross-country motorcycle. Every option on this bike, from the black-anodized rearset footpegs to the custom BMW Iceberg Blue paint job, is included in the shop's inventory.

Though San Jose BMW doesn't expect to sell bikes such as the Sport Pac by the truckload, shop owner Ron Lang says the Sport Pac exhibits all the qualities a high-performance motorcycle should have. And that means two things in particular: good handling and a comfortable ride. To see for myself, I took a day-long trip on this blue-and-red roadster from Lang's shop in San Jose, California to the *CG* office in Los Angeles. In keeping with the spirit of sport touring, I avoided four-lane Interstate whenever I could. My primary route followed the jagged Pacific coastline of California's Highway One, with Lang escorting me the first 150 miles aboard an R100RT with suspension and frame modifications similar to those of the Sport Pac bike.

As we carved our way down One, re-radiusing hairpin turns into simple bends in the road, I settled into the sport/touring mode, mixing the fun of a spirited Sunday morning ride with the relaxation of a weekend tour through scenic countryside.

This blend of two entirely different worlds is easy to accomplish on the Sport Pac. The riding position cants you slightly forward across the 6.3-gallon gas tank so you feel like charging into turns that invite you with just the right amount of radius and camber to get the adrenaline flowing without being dangerous. And yet while the Sport Pac's handlebar-to-rearset relationship makes you feel like Kenny Roberts in the turns, you still ride with the comfort of a seasoned long-distance tourer on the straights. You never feel cramped into a roadracer's crouch, but neither are you hampered by the stretched-out effect some touring bikes provide. Altogether, the seating position makes you look like Superman ready to launch himself into the sky—shoulders hunched, feet placed for optimum balance and arms forward, ready to thrust all energy skyward. Only you won't leap tall buildings in a single bound. Instead, you'll clip hundreds of apexes in a single day.

The Sport Pac handles the turns well because its bloodlines can be traced back several years to the BMWs that were the dominant force on the AMA Superbike circuit. Many of the Sport Pac's chassis and engine components were used on the Butler & Smith Teutonic twins that finished first and second at Daytona in 1976. Although Butler & Smith lost its racing fever and withdrew the following year, San Jose BMW purchased one of the bikes and went racing. The following two seasons Harry Klinzmann rode that BMW R100S at AMA Nationals, winning the 1978 Loudon race.

San Jose BMW turned its race effort into a money-making program by manufacturing parts used on the racer for street use. Racing hardware like rearset

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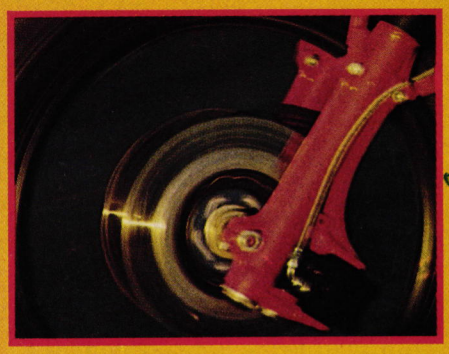
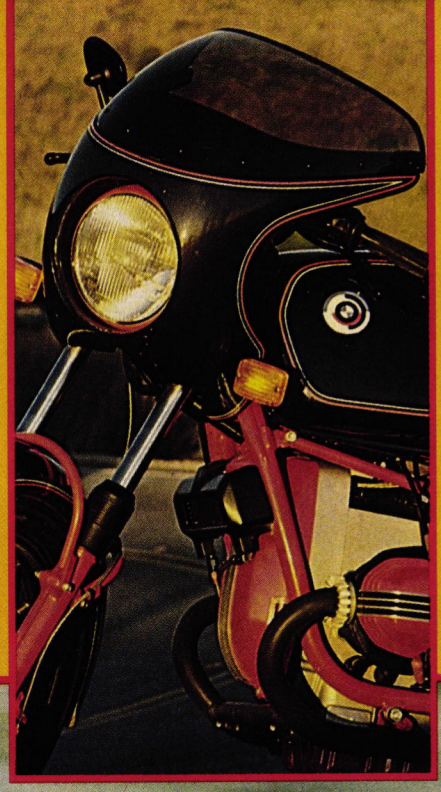
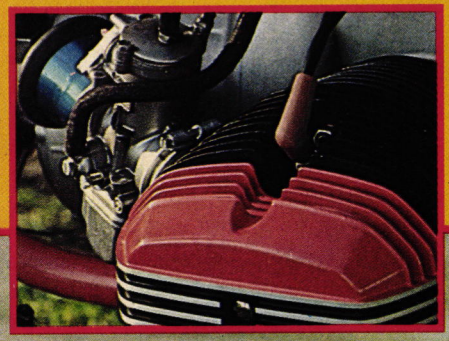
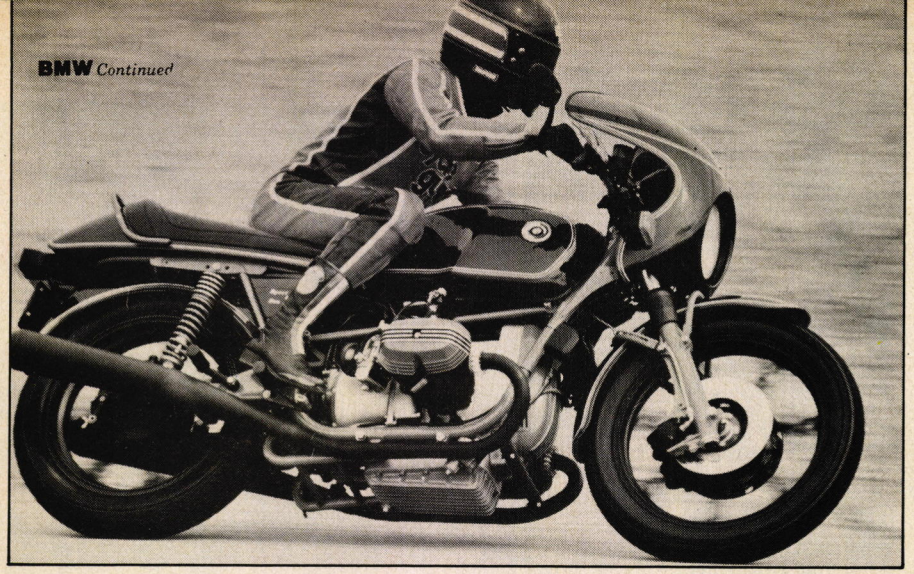
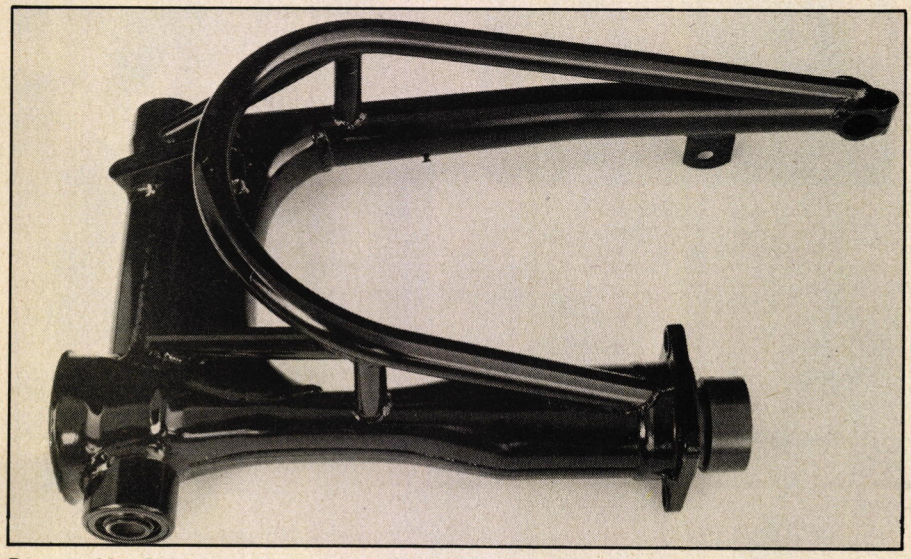






PATRICK BEHAR





Bottom side of swingarm shows triangulated sections of tubing

By adding metal, you take away some of the axle stress to the swingarm legs.

footpegs, a fork-spring kit, frame supports, and small engine items such as carburetor velocity stacks soon crowded the parts shelves. San Jose BMW now has a full color catalog filled with performance hardware originated—and still used—on its racer. As Lang says about the shop's racing effort, "We race because it gives the parts we sell credibility with our customers. And also, because everybody in the shop enjoys racing."

During my taillight-tag race with Lang down Highway One, I felt the presence of this roadrace heritage in the Sport Pac with each turn I flicked through. Although the familiar BMW torque reaction wanted to jack the rear end up when I accelerated, its effect on handling didn't seem as noticeable as with other BMWs I have ridden. Part of the reason the Sport Pac felt so stable, even when power was applied to the rear wheel, has to do with two frame modifications.

The most apparent alteration to the frame is the pair of ¾-inch-diameter tubes connecting the front downtubes to the rear frame substructure. Tying the frame together at these two critical points makes it more rigid, so it's less likely to twist and flex when torque thumps through the driveshaft. A less noticeable fix—in fact, it's barely visible when the air cleaner cover is in place—is the small X-shaped engine mount securing the back part of the motor to the frame. Keeping the engine snug in the frame minimizes engine vibration and strengthens the frame. Although the Sport Pac's air cleaner case has been removed, Lang says the ½-inch diameter engine bracket will fit when the stock air cleaner cover is present.

Once the frame was strengthened, San Jose BMW stiffened the suspension so the bike wouldn't wallow in the turns. The first alteration was a set of Works Performance shocks and springs that have slightly stiffer rates than stock and no variable preload settings. They held the bike steady during a broken-field run through the corners, yet didn't pound my kidneys while I made time across those straight stretches of Interstate that always make the horizon seem so far away.

Interestingly, the stock fork has only one modification: a set of anti-bottoming springs to replace the rubber bumpers inside the fork tubes. San Jose's four-inch springs have sufficient preload to keep the fork from bottoming out under hard braking or during severe cornering. The anti-bottoming springs also help prevent acute nosedive during less-strenuous braking and cornering, so you have more control, no matter what the conditions. These springs accomplished about the most noticeable modification to the riding manners of this R100S, and if no other change were made, this single item would be more than worth the $25 it costs for installation.

The Sport Pac BMW's fork action is further aided by aluminum triple clamps and a hefty fork brace made from ⅝-inch steel tubing. The replacement triple clamps have the same dimensions as a stock pair but they're much stronger. During sport riding, these clamps help reduce lateral and longitudinal flexing by the fork. And by keeping the fork legs in the same plane at all times, the front suspension works unhindered and without binding. The fork brace, in turn, keeps the fork tubes aligned, so there is minimal stiction between them and the sliders. Both of these components were developed in the roadrace effort and are still used on San Jose BMW's Superbike.

Unlike the other chassis modifications, which are simple bolt-on pieces, the Sport Pac swingarm requires some welding. You send your swingarm to San Jose's shop for the tune-up, which consists mainly of ¾-inch tubing welded into triangulated sections that spread the axle loads throughout each leg and to the swingarm pivot, keeping the rear wheel firmly in place.

All of these chassis parts will cost you about $1200 including installation. But more to the point, you get a BMW in return that likes to romp playfully on twisty backroads, yet is quick to answer a long-distance call on the Interstate. You never have to stop at the side of the road to adjust suspension settings when you travel from one riding environment to the next. The only adjustment you make is to your riding style.

Like the suspension, the engine has a dual personality, too. It's built to the same basic specifications as a racing engine, but it delivers power smoothly at just about any rpm. It doesn't erupt with horsepower at a certain rpm, like a CBX; instead, horsepower production rises swiftly but predictably. If you didn't know that many

of the parts bolted together inside these bulbous Beemer engine cases indeed boosted power, you might even suspect the engine had been left stock. But don't be fooled. Although the Sport Pac contains special final-drive gearing that could be used to reach 139 mph on the banks of Daytona, the San Jose BMW still sprints through the quarter-mile in about 12.6 seconds.

These low ETs carry a high price tag—it takes over $4000 to duplicate the Sport Pac's engine. There's nothing exotic about this motor, though. It's just a well-thought-out engine put together carefully in San Jose's clean-room adjacent to the spacious service department. All the internals are right off the parts shelf and are listed in San Jose's catalog. Before the engine is assembled, though, the crank, rods and pistons are balanced so the motor runs as smoothly as possible. And because these parts are carefully massaged prior to assembly, San Jose BMW claims its engine has a life expectancy of more than 50,000 miles. All you have to do is follow typical BMW service procedures at the required intervals, and resist the impulse to race the two 94mm Venolia pistons to the 7500-rpm redline *too* often. So an engine that has been reborn in San Jose and then shipped to a customer in New York doesn't have to make a 3,000-mile westward migration every time the valves and points need adjustment. And if you follow the prescribed BMW service schedule, San Jose BMW warrantees the engine.

Lang puts this kind of faith in his company's work because of past experience both on and off the racetrack. Even though the flat twin is not competitive anymore in AMA Superbike racing, the reliable SJ Beemer practically always finishes the races in the top 10. And the parts used on the racer frequently end up in street engines like the Sport Pac's. For example, the stainless steel valves, dual valve springs and titanium retainers in this engine are identical to those in the race bike San Jose matches against the Yoshimura Suzukis. The polished ports and carburetor velocity stacks also come from the roadrace track.

At idle, the Sport Pac engine sounds much like any other BMW 1000. There's a little more intake noise through the foam-covered velocity stacks, but other than that, there's no noticeable difference. That is, there's no difference until you click the transmission into first gear and apply power to the rear wheel. Then the intake noise is overcome by a restrained roar echoing from the 40mm BMW European-model exhaust pipes. Exhaust headers 2mm wider in diameter than on U.S. BMWs lead to mufflers that have drilled center baffles, so when the engine spins over 4000 rpm during acceleration you hear a sound that belongs on the roadrace track. But you don't have to worry about irritating your neighbors, because at less than 4000 rpm, the Sport Pac produces a sound more like a baritone BMW.

The engine sings when you want it to because it revs quickly, thanks to a shaved and lightened flywheel. Further reductions in rotating weight come from a metallic clutch plate, and pistons, wrist pins and rings that together weigh 100 grams less than stock. San Jose BMW's theme of less-is-more didn't apply to the spark plugs, though, for there are two in each head. The vestigial bottom plug hole cast into every BMW head has been specially drilled and tapped for the dual-plug ignition system which is monitored by a Dyna III black box atop the engine case. More complete combustion with two spark plugs results in more horsepower.

To assure that this hot-rod engine stays cool, there's a thermostatically controlled oil cooler beneath the steering head. And just to let you know that the oil temperature isn't getting too high when you're pushing the tach needle close to the red zone, a VDO temperature gauge takes the place of the voltmeter in the fairing dashboard. Also tucked under the fairing is an R65 dual-disc master cylinder so lever action requires less muscle. And don't be too concerned with the substitution of the old-style rear drum for the disc; the Sport Pac stops plenty well and the drum reduces

You Can Ride This Bike

• Stop drooling and listen up. You may be able to afford a ride on this $14,000 motorcycle after all. How? Simple, says San Jose BMW. Lease it. And by "it," San Jose BMW means anything it's got on the showroom floor. San Jose BMW is in fact the first dealership *CG* has heard of that both sells and leases bikes. Signing a lease instead of a purchase agreement is a little bit like going to a sale. You get what you want but didn't think you could afford. But even better, there's no bitter aftertaste of guilt. You can ride the bike of your dreams and still justify it to your banker.

The rationale behind a lease is cash flow. There's no large down payment and your monthly payments are lower than they'd be for a purchase. The crunch comes at the end of the three-year lease—when you either turn in the keys or pay up to buy the bike. If you want to purchase it then, the "residual value"—the difference between what you've paid and the cash value of the bike—is due. This figure is decided upon when the contract begins. It's usually based on the hypothetical blue-book value of the bike in three years.

The requirements for leasing are stiffer than those for buying, though. Because you're putting less money up-front, your credit rating must be unblemished. The leasing company also compels you to carry maximum liability coverage. In addition, San Jose BMW requires that you be at least 25 years old with two years on the job. At the end of the customary three-year term, you're also responsible for the condition of the motorcycle. Normal wear is taken into account, but a badly beaten-up bike requires an explanation and possibly a penalty fee.

Which brings us back to the nitty-gritty—money. According to San Jose BMW's figures, the Sport Pac's retail price of $13,277.36 plus $666.60 for sales tax and $241.00 for license add up to $14,184.96. When you compare financing the Sport Pac with leasing it (based on San Jose BMW's costs and interest rates in February 1980), you'll put out substantially less money along the way by leasing.

TIME PURCHASE
Dwnpmt.: $ 2125.00
Mo/Pmts: 455.60
Total: $18,526.60

LEASE PAC
Init.Pmt.: $ 588.44
Mo/Pmts: 347.44
Total/Lsp: $12,748.84
Residual/Buy: 7000.00
Total/Buy: $19,748.84

In addition, a lease affords you some financial flexibility not available from most lending institutions. If you only have a certain amount of money to spend on a motorcycle every month, the lease gets you more motorcycle for your money. And at the end of the lease, it may be possible to extend it another three years (although this is rare). Most often, though, you're apt to purchase the bike. Still, you probably won't have the lump sum. So, you arrange for a bank loan on the residual value of the bike—usually over another two years. In essense, this arrangement amounts to a five-year plan to buy a very expensive motorcycle. It will cost you more money than it would with an outright purchase in the end, but less money every month will be required.

So when the ink on the lease contract is still drying and your buddies ask how much "that toy" will cost, there's no need to feel guilty. Just smile and tell them how much money you're "saving" each month.

—*Merry MacTavish*

Continued

unsprung weight for good handling.

Good handling is the real reason for owning a bike such as this. It's fun to tip the Sport Pac until the engine valve covers knick the pavement. And when you do, the WM3 and WM5 Lester wheels make sure there's plenty of Michelin PZ2 rubber on the road. And it's this stem-to-stern, fairing-to-drainplug detailing that makes a motorcycle like this worth $14,000.

Of course, not every man can afford $14,000. The Sport Pac is intended, after all, to function as a rolling showcase for speed parts from which you're supposed to pick and choose with the aid of San Jose BMW's $2.00 catalog. Even so, the prospect of owning this bike is fascinating. Because, first of all, the Sport Pac refines a standard BMW into the Ultimate BMW without demanding sacrifices that compromise its real-world performance. And second of all, because this *isn't* everyman's motorcycle. The Sport Pac makes you feel special. It's the most lavish answer yet to the simple question, "How many zeroes did you say to write on this check?" •

SPECIFICATIONS:

DISTRIBUTOR: San Jose BMW
1886 West San Carlos Street
San Jose, California 95128
(408) 295-0205

CATEGORY: street

SUGGESTED RETAIL PRICE: $14,184.96

ENGINE

Type	four-stroke horizontally opposed twin
Valve arrangement	pushrod-operated valves
Bore and stroke	94.0mm x 70.6mm
Displacement	979.9cc
Compression ratio	10.2:1
Carburetion	two 38mm Dell'Orto constant-velocity
Air filter	dual washable foam elements
Lubrication	wet sump
Starting system	electric only
Ignition	Dyna III with modified dual-plug head

DRIVETRAIN

Primary drive	helical gears
Primary drive ratio	1.50:1
Final drive type	spiral-bevel gears
Final drive ratio	35/12: 2.91:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.93	12.79	5.9
II	1.91	8.34	9.1
III	1.38	6.02	12.5
IV	1.11	4.85	15.6
V	1.00	4.37	17.3

SUSPENSION/WHEEL TRAVEL, IN.

Front	36mm stanchion tube diameter/6.6 in. (168mm)
Rear	Works Performance, no preload adjustment/4.6 in. (117mm)

BRAKES

Front	dual single-action hydraulic calipers, 10.2-in. (260mm) discs
Rear	drum, single-leading shoe, rod-operated

TIRES

Front	3.25H19 S41 Michelin PZ2 compound
Rear	5.10H18 M48 Michelin PZ2 compound

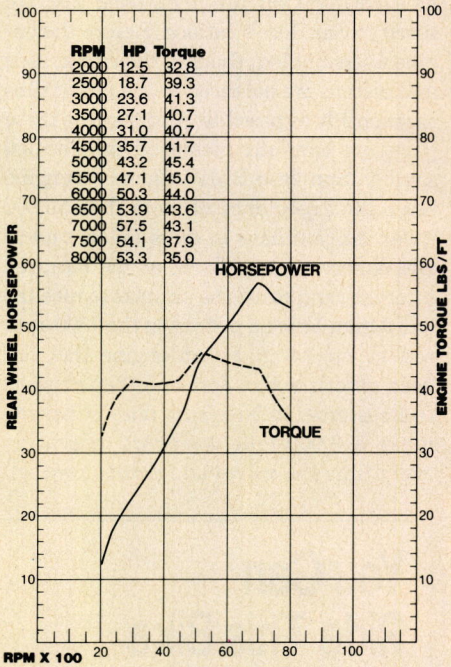
DIMENSIONS AND CAPACITIES

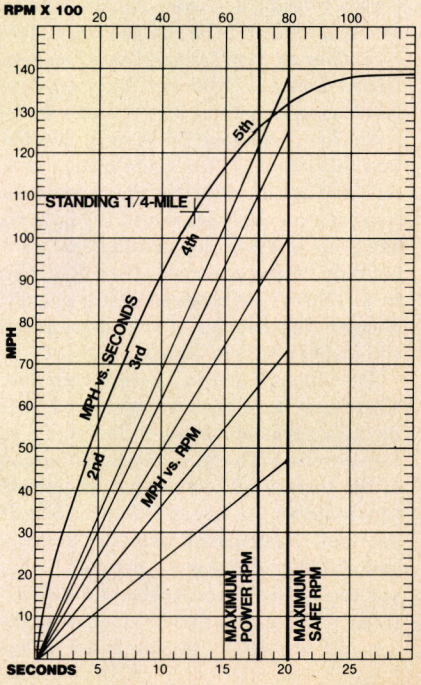
Weight	464 lbs. (210kg)
Weight distribution	47% front, 53% rear
Wheelbase	58.4 in. (148cm)
Seat height	32.3 in. (820mm)
Handlebar width	24.3 in. (617mm)
Footpeg height	12.8 in. (325mm)
Ground clearance	6.9 in. (176mm), at drain plug
Steering head angle	28.0 degrees from vertical
Front wheel trail	3.5 in. (89mm)
Frame	tubular mild steel, double front downtubes with substructure reinforcement tubes.
Fuel tank	steel, 6.3 gal. (23.9/)
Instrumentation	tachometer, speedometer, odometer, tripmeter resettable to zero, oil temperature gauge, quartz clock

PERFORMANCE

Fuel consumption	42.3 to 47.6 mpg (18.0 to 20.2 km/l)
Speedometer error, 30 mph indicated	27 mph actual
Speedometer error, 60 mph indicated	55 mph actual
Best ¼-mile acceleration	12.66 sec., 105.9 mph (170 kph)
Top speed (calculated)	139 mph (223.7 kph)
Stopping distance from 30 mph	29 ft. (8.8 m)
Stopping distance from 60 mph	139 ft. (42.4 m)

PERFORMANCE:





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KING: 20 mg. "tar", 1.4 mg. nicotine av. per cigarette, FTC Report DEC. '79.

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GREAT MOMENTS IN MOTORCYCLE MOVIES:

Moto-Moviola

A Cycle Guide to motorcycle movies from "How To Stuff A Wild Bikini" to "On Any Sunday."

BY MERRY MacTAVISH

• When you've had that double dose of caffeine, you're on the verge of inventing a substitute for fossil fuels *and* your bed-buddy's already asleep, there's only one remedy: the late LATE show. Scanning the titles can be amusing in itself for about a minute, but it won't tell you what you're getting into. Not even when there's an occasional listing that beckons to the biker in you. But don't just hurl your socks across the room; reach for your *Cycle Guide* to motorcycle movies.

"*What* motorcycle movies?," you may well ask. After delving through the stacks of a hundred-odd (and "odd" is the key word) motorcycle movies distributed in the last 20 years alone, that's still a good question. Just what constitutes a motorcycle movie remains up for grabs.

According to Hollywood, motorcycling (and so, the motorcycle movie) is a sociological garbage truck. People who ride motorcycles are classified as hoods (male or female), groups of hoods or hoods turned good. Complicating the quandary for the film fan, most of the movies that sound like they're about motorcycles aren't about motorcycles at all. They're about social deviates. Preposterous as it may seem, there are few motorcycle movies that concern themselves with the sheer joy of riding the things.

For better or worse, some of the best scenes involving motorcycles happened in movies that weren't *about* motorcycles at all. Who can forget, for instance, Steve McQueen bounding across meadows and over barbed-wire fences in "The Great Escape?" In fact, many of the most crucial roles motorcycles have played were in films that had nothing to do with motorcycling. If Charles Lindberg hadn't had a motorcycle to sell in order to purchase his first airplane, there might never have been "The Spirit of St. Louis." And surely an award for the most bizarre motorcycle scene must go to Jean Cocteau's "Testament of Orpheus." In this allegorical tale, the Poet has just risen from the dead for the second time. When he hears the sound of approaching motorcycles, he assumes they are the messengers of death. Actually, they turn out to be motorcycle cops who ask him for his ID card. Anyway, you had to be there. "Lawrence of Arabia" certainly evoked memories of parched throats as we crawled painfully through the interminable desert with Peter O'Toole, but we can't forget that Sir Lawrence died violently when he pitched his Brough Superior. In all these movies, the motorcycle receives a minute amount of air time for its astounding dramatic impact. Unfortunately, this intensity and overall quality rarely is sus-

Continued

The Biker's Dozen

RATING SYSTEM

One helmet: If you need a good night's sleep—watch this one.

Two helmets: Every quarter of an hour turn the channel to fifteen minutes' worth of Capt. Midnight; alternating regularly simulates entertainment.

Three helmets: Worth wading through the 10-minute hawking of genuine gadgets "not available in stores" for the occasional seven minutes of film.

Four helmets: Don't miss it even if you have to get up at five a.m. to catch a flight to Toledo.

THE LONE RIDER

EASY RIDER (1969)

STARS: Peter Fonda, Dennis Hopper, Jack Nicholson, Karen Black.

The two motorcyclists are prime-time players in what turns out to be the drama of America in the Sixties. The simplistic social dogma consisted of Them (over 30) and Us; Them (pro-Vietnam) and Us. The baddie no longer wears a black hat; rather, short hair and a red neck. The two hippie-bikers sell some dope at the California/Mexico border. They proceed on a trip to New Orleans, beseiged by the short-haired bad-necks lurking around every sagebrush. What at first glance seems a respite in the French Quarter becomes another kind of bad trip. Not to worry. When the yellow brick road leads to the city cemetary, Oz is not New Orleans but the Seventies.

EVEL KNIEVEL (1971)

STARS: George Hamilton, Sue Lyon

Nowadays, it's difficult to remember if it was the movie or the toy that came first. The movie picks an admirable subject: an honest-to-god legend in his own time. But unfortunately, the movie, while juggling flashbacks of the genuine article, gives us Batman playing Richard Nixon in a Tennessee Williams play. It just doesn't work. Somehow we keep looking for caption balloons with "BLAMO!" written in them. There is, however, a "don't-miss-it" category chase scene around Butte.

ELECTRA GLIDE IN BLUE (1973)

STARS: Robert Blake, Billy Green Bush, Mitchell Ryan, Jeannine Riley, Elisha Cook.

This is the first movie depicting a motorcycle cop defeated by the demons of society. This intense movie gives our collective angst a workout. We are flung mercilessly from a scene of lovemaking to a scene of murder without a pause to adjust our emotional shock absorbers. By the time we get to the last half-hour of the film, we think we can handle anything. We have followed our hero through blood, sweat and tears. Even so, our angst has still to absorb the final unreasoning blow.

GANG FILMS

THE WILD ANGELS (1966)

STARS: Peter Fonda, Nancy Sinatra, Bruce Dern, Michael J. Pollard.

This film is notable for its authentic portrayal of gang life. If it doesn't make you wonder with which gang the movie maker has been associated, you've probably been too busy staring at the leggy Nancy Sinatra to notice. The toll that the clichés take of the drama is made up by the cinema-verité style, which almost makes the movie into a documentary. No longer need we be kept awake nights wondering what "these boots were made for. . . ."

HOW TO STUFF A WILD BIKINI (1965)

STARS: Annette Funicello, Dwayne Hickman, Harvey Lembeck, Frankie Avalon, Buster Keaton, Brian Wilson, Mickey Rooney.

This is one of the classic teenage beach movies—fun because it never takes itself seriously. For the boy or girl in heat, there's plenty of time to ogle partially clad bodies. The Rat Pack, led by Eric Von Zipper, becomes an indistinguishable slice of another sit-com plot, but Frankie wins Annette, so what more can we ask for?

CC AND COMPANY (1970)

STARS: Joe Namath, Ann-Margret.

This is probably the best of the movies depicting a gang member as the hero. But then, if it isn't, I may have been too busy staring at Joe Namath to notice. (I'm only human.) The movie does, however, raise some timely questions: Can Ann-Margret find true happiness with "Moon?" Will "CC" nuke the "Heads?" While Joe Namath is no Goody-Two-Shoes, he's certainly redeemable in my book.

NO BLADE OF GRASS (1970)

STARS: Nigel Davenport, Jean Wallace, Anthony May.

In this movie, a motorcycle gang plays a vital role within a science fiction plot. A poll of end-of-the-world predictors (also Sierra Club members) could have been the basis for this movie. Actually, it is one of the better Doomsday plots. Pollution that instigates a worldwide plague in grain is the villain. The movie focuses on a particular family that flees London and its impending anarchy. The central vision of social upheaval is the gun-toting, gang-banging group of motorcyclists. Ten years later we throw up our hands and say, "Hey, guys, it's not pollution—it's petroleum," and we envision fleets of mopeddlers leaving our cities.

THE LOSERS (1970)

STARS: William Smith, Bernie Hamilton, Adam Rourke.

This movie gives us the amazing story of a gang's role in the Vietnam war. Even though the title is a dead giveaway, this is obviously a gang of a different stripe. The gang's job is to spring an American Presidential Adviser from a Chinese POW camp in Cambodia. The cunning Maj. Thomas seeks a solution to this problem through his brother Link and his friends Duke, Dirty Denny, Speed and Limpy. (You can tell by their names that they're gang members). They convert their bikes into armored vehicles, but the result is disastrous militarily and politically. Nonetheless, any movie-maker who can change a gang from a monster into a collective martyr deserves some credit.

THE WILD ONE (1953)

STARS: Marlon Brando, Mary Murphy, Robert Keith, Lee Marvin.

This is a classic gang story done exceptionally well with a believable hero. Brando's back-up group is dressed to kill. And you can take that statement anyway you want. We get the feeling, however, that they are only practicing for the bigtime. What is a Newark-caliber act doing in Weed, California? What they're doing, of course, is reinforcing Americans' fear of

greasy hair, black leather and, of course, motorcycles.

THE RACING MOVIE

ON ANY SUNDAY (1971)

STARS: Steve McQueen, Malcolm Smith, Mert Lawwill.

This may be the only time you'll get to see Steve McQueen play himself. He and two other competition riders (Malcolm Smith, top-ranking amateur and Mert Lawwill, leading pro) represent different kinds of sport motorcyclists. The movie realistically presents the sport as it expresses itself in the lives of these men. While it can be an exhilarating force, challenging them to stretch their skills and taxing their endurance, it also takes its toll in the physical pain inherent in those demands. The action is enough to appease any race buff; the humane perspective enough to quiet a restless non-buff.

LITTLE FAUSS, BIG HALSY (1970)

STARS: Robert Redford, Michael J. Pollard, Lauren Hutton, Noah Beery.

Freewheelers beware. Racing circuits are not (repeat, *not*) glamorous. It does take some reminding, as we gaze at the glamorous, love-'em-'n-leave-'em Redford. This is really a Lone Rider in disguise; it is not about racing. Halsy relies on his good looks and reckless ways to win women and races. By the end of the movie, however, it is Fauss' honest day's labor that really pays off. There is some decent racing footage nestled between the moral lessons. The movie is worthwhile for these moments and for its impressions of the track.

A LONE RIDER, UNMASKED

BIKE BOY (1967)

STARS: Joe Spencer, Ed Weiner, Vera Cruz

The film makes an unchallenging game out of spot-the-perversion, but is certainly a well-deserved lampoon in the arm of Machoman. The motorcyclist, a California boy, has just arrived in New York City. As we sit watching him comb his hair very slowly, we know that either Andy Warhol is up to something or it's time to get out of the theater. We follow him on his shopping jaunt to the all-gay boutique and to the florists, where a woman corners him to discuss the benefits of flagellation. The story proceeds with one kinky seduction scene after another, until the exhausted motorcyclist is browbeaten into making love to a woman on a couch. *—Merry MacTavish*

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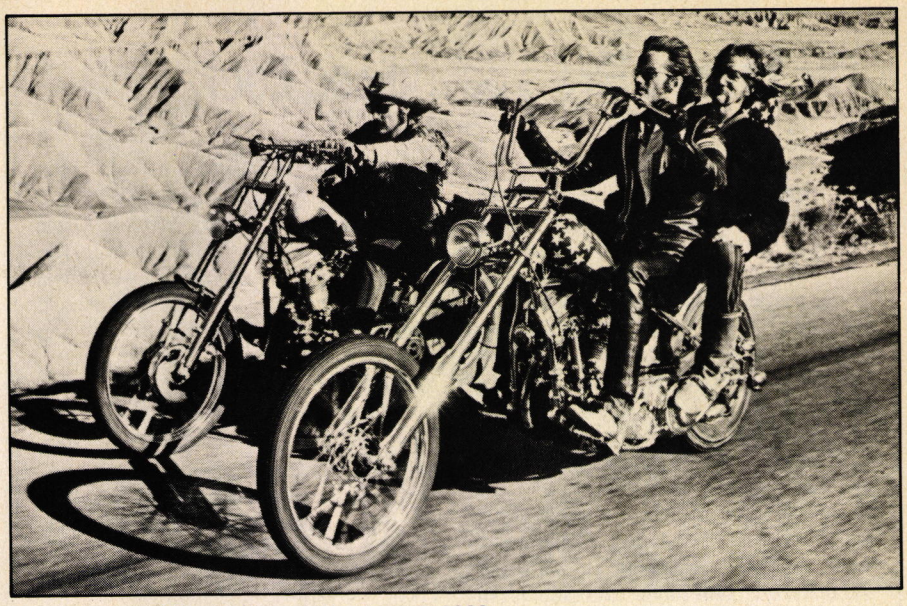

Billy, Wyatt and hip dirt-farmer blowing it in 1969

Who knew that at the end of the road lay Specials, Customs and the Wide Glide?

Macho Marlon and his unmacho, sensible, single carb, sissy Triumph Thunderbird

It's 1953; do you know where your daughters are?

The Hungry Eye's Jaundiced Look

• It is self-evident that prime-time TV is *not* a reflection of everyday life, so it comes as no surprise that motorcyclists fare no better at the hands of this medium than film. With few exceptions, television underscores the archetypal, anti-social biker we have seen ad nauseam in movie houses, and the constraints of the medium itself only add to its sins in depicting the biker persona.

Television's format is by nature close-up and quick. The average one-hour drama contains less than 50 minutes of plot, just enough time to move the main characters through the story. Villains are relegated to easily recognizable symbols: The man in the ski mask is a bank robber, kidnapper, rapist; the guy with a Caddie in the driveway of his fancy house in the hills, two thugs at his side, is a syndicate kingpin; anyone with a leg over a motorcycle is a deviate, and two or, God forbid, *more* of them are a direct threat to society as we know it. Audience identification must be immediate, and it's a sad truth that the image problem we motorcyclists suffer is nowhere more apparent than in our country's most popular form of entertainment.

Jim Garner was beaten up by bikers on "The Rockford Files," Robert Urich chased killer dirt riders on "Vega$," Michelle Lee was terrorized at the beach by an outlaw gang on "Knots Landing," and even "Eight Is Enough" dealt a moral lesson to Grant Goodeve on the evils of boozing, pill-popping and biking, all during the last two network seasons.

Prime-time's 35-year history is littered with other examples, but the message is clear: We motorcyclists aren't exactly the kind of people Mrs. Olson would have over for Sunday dinner. Adding insult to injury, this theme is reinforced often because TV producers—not a terribly inventive lot—need alternatives to the obligatory car chase scene; so bikes occasionally provide slam-bang action.

There have been attempts, albeit few, to elevate the subculture to star status. Six, count 'em folks, *six* shows have featured heroes on bikes, though only one of them was even remotely *about* motorcycling. Four are gone, and the two that remain hedge their association with so depraved a pastime. It's interesting but not neccessarily relevant to note that CBS, the all-time No. 1 ratings leader, *never* has accepted a program of this ilk, while NBC, currently in the throes of a ratings demise, has aired four. ABC's offerings are the two longest-running of the bunch, which doesn't count for much since bikes are peripheral props on their shows, at best. The lineup:

TROUBLESHOOTERS
1959–60, NBC
Keenan Wynn as an early-day Red Adair, with Bob Mathias as his youthful sidekick, solving problems at construction sites. Gruff and uncivilized, Wynn occasionally rode a Triumph, making this show the first of a rare breed.

MARCUS WELBY, M.D.
1969–76, ABC
Ten years later we see James Brolin as Dr. Steven Kiley riding a token Triumph or Kawasaki in the title frames of each segment. The bike was used for little else but window-dressing in this giant of the medical genre.

THEN CAME BRONSON
1969–70, NBC
The only show to regularly feature a motorcycle, in this case an H-D Sportster, and a civilian. Michael Parks' big-city reporter searching for the meaning of life by biking across America was a yawn to most viewers, however, and it lasted but one season.

NICHOLS
1971–72, NBC
A rare James Garner failure, notable mostly for the art director's valiant effort at creating a 1914 Harley from a '71 Montesa. Garner, a turn-of-the-century sheriff, drove a flivver and the H-D-MON in this paean to the passing of the Old West. He was shot to death—presumably because of poor ratings—in the final episode.

HAPPY DAYS
1974– ABC
The "cool" dropout Fonzie vs. the "straight" Richie, this show is a classic American sit-com. The Fonz rode his Triumph in the title credits for a few years, and is pressed into some heroic stunt (two-strokes are used, with an embarrassing audio discrepancy) once in a while, but bike references are mostly leather and language here. With luck and syndication, we'll be seeing this homage to the 50's for another decade.

CHiPS
1977– NBC
"Adam 12" on two wheels. Ponch and Jon careen their Kawasakis on the L.A. freeways in hot pursuit of bandits and babes. Immensely popular with the under-14 set when it debuted, the show has been reduced to a mostly chase-sequence format recently. It keeps a lot of Hollywood stuntmen alternately employed and in the hospital, and even Erik Estrada ("Ponch") high-sided himself into a parked truck during shooting this season. In a rare display of taste, the producers announced that though the cameras were rolling we'll be spared seeing Erik's untimely get-off. —*Jeff Burtt*

tained in movies about motorcycles or motorcyclists themselves.

The Lone Rider (read hood) who turns up repeatedly in Hollywood's efforts is at best a nonconformist and at worst a criminal. "Easy Rider" and "Then Came Bronson" both depict decent kids who somehow got caught in the warp and woof of life and used motorcycles to break out and find themselves. There was a lot of self-finding in the Sixties. One good guy who didn't have time to find himself, however, was the motorcycle cop in "Electra Glide in Blue." The Forces of Evil prevailed. The feeling of

Star-spangled Hamilton

Riding with comic-book perfection.

not being in control of one's destiny became a part of the shock value of bikers in "The Sweet Ride" and in "Les Bonnes Femmes." That feeling persists in the scene of the motorcyclists being brought in for questioning in Norman Mailer's "Beyond the Law." There are Lone-Rider counterparts to this kind of adventure film in "THX 1138," when our hero escapes on a motorcycle, and in "Agent for H.A.R.M.," which ends in an elaborate chase scene between a motorcycle and a helicopter. The Lone Rider is always a social outcast. The question is raised that maybe there's something wrong with someone who chooses a solitary mode of transportation—or is it simply an aura of macho mystique?

Whatever it is that alienated the Lone Rider from society is multiplied infinitely with the phenomenon of the gang movies. These rip/stomp films far outnumber any other kind of movie about motorcycles. In this new-generation horror film, the gang becomes the monster. A list of titles reads like an opera of the afterworld, based, of course, on the Hell's Angels. As a template for this genre, we witness a whole town being terrorized in "The Wild Angels." Amidst such fear, though, is the realization that these hoods were also our children, so they couldn't be totally bad. Thus, some

films such as "Ride Hard, Ride Wild," "The Rebel Rousers," and "Angel Unchained" showed individual gang members rejecting their peers for the good life in the suburbs. The themes of youth, sex and violence were played to the hilt in these films, yet there was an astonishing variation on the "gang" theme.

Considering the dramatic use of the motorcycle in so many films, it's surprising that actual races remain, for the most part, unexploited. "Little Fauss and Big Halsy," one of the archetypal racer-flicks, is really more about the lifestyle of circuit racers than about racing itself. It's almost a variation on the social-deviate theme so popular in the gang movies. And "Sidecar Racers," despite its title, isn't about racing at all. It's about protracted adolescence and its romantic problems. "The Gumball Rally" has a token motorcyclist in a cross-country race, but he's another peculiar sort, just stuck in for laughs. "Mondo Daytona" is another movie that sounds like it's about racing, but it is just a disappointing collection of impressions of that city during racetime. The only real film about racing, Bruce Brown's "On Any Sunday," is excellent and rewarding for racer or spectator. Within the context of most motorcycle movies, it turns out that perhaps the most important revelation about Brown's film is that you don't have to be a hood at all to be a motorcyclist.

Actually, the beach-genre "boy-meets-girl" movies tend to agree with Brown's non-badguy-motorcyclist themes. No one could be frightened of the gang in "How to Stuff a Wild Bikini." And the secretary/motorcyclist in Bob Hope's "Boy, Did I . . ." can hardly be considered a hood. Movies like "The Knack . . ." and "Shampoo" leave no question that the boy with the bike wins the girl. "Two-Lane Blacktop" even depicts a confrontation between car-owner and bike-owner to make its point. This macho theme has appeared with such sickening regularity that it eventually had to be lampooned. Even dedicated motorcyclists had to groan at the predictability of it all. So as early as 1967, Andy Warhol made his satire "Bike Boy."

Finding movies about or with motorcycles is not a difficult task. What's hard, it turns out, is discovering movies such as Brown's "On Any Sunday" that take motorcycling at face value. Just as skiing, flying or sailing attract a wide range of participants, so does motorcycling. But Hollywood's fantasies die slowly. And while the fantasy of motorcycling hangs on in the Hollywood Hills, you'll find that the fun of riding usually is distilled in fragments of movies *not* about motorcycles. •

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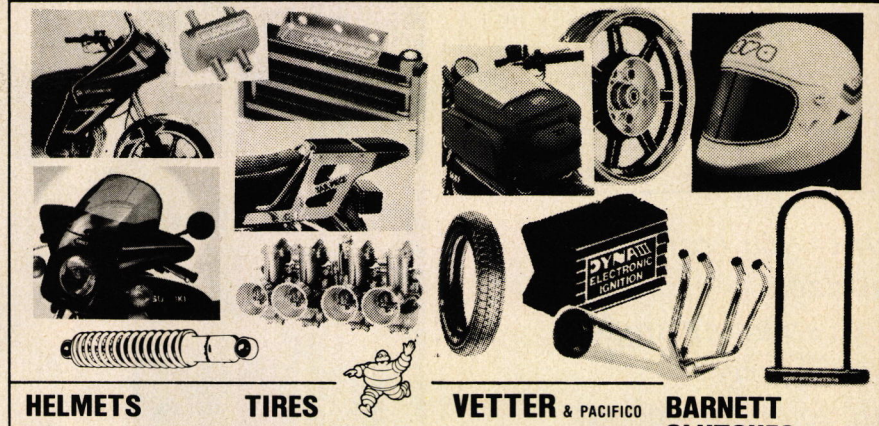

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ROAD TEST:

Suzuki GS450ST

Once you crank the horizon to a sporting angle you'll forget all you heard about 400-class crackerboxes.

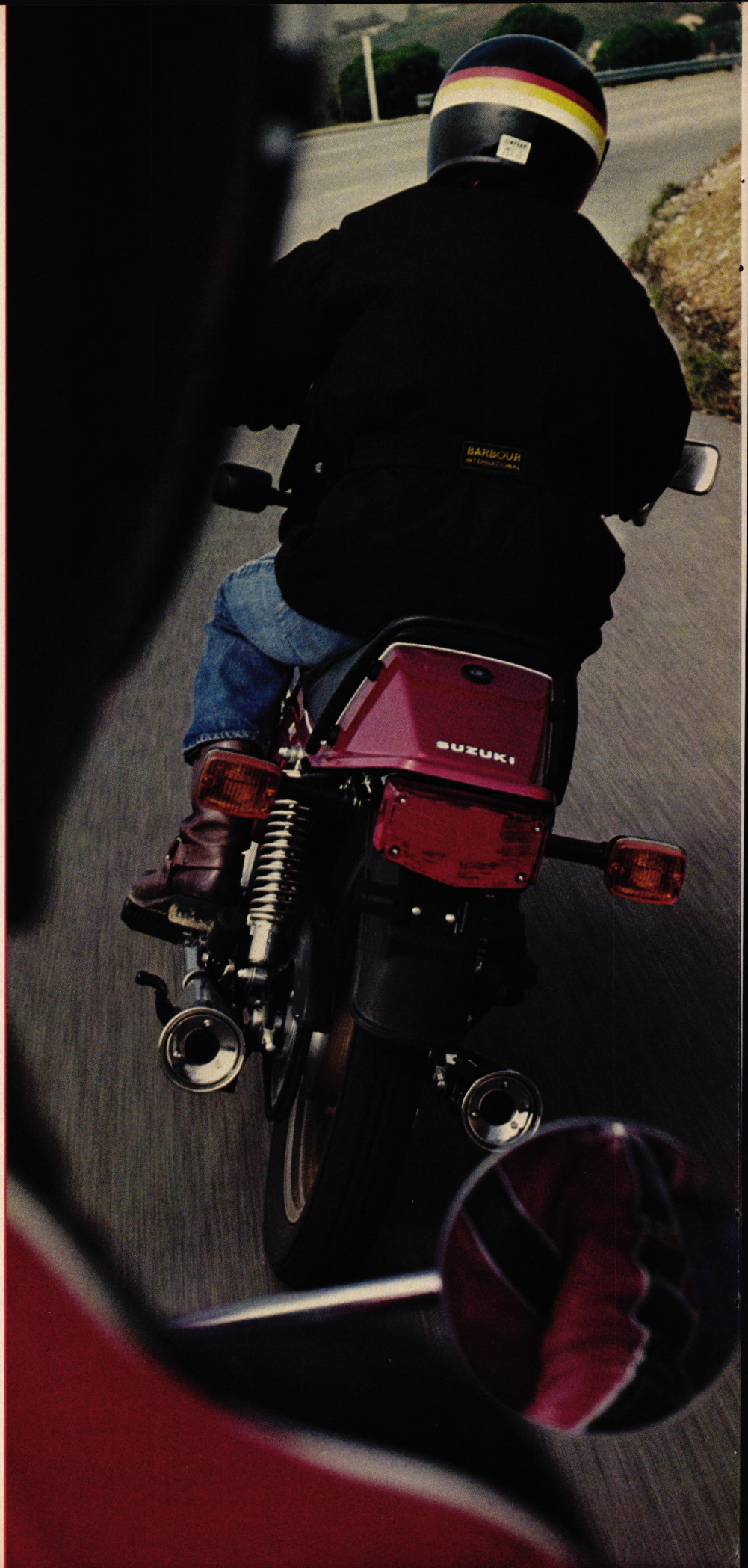
BY DAIN GINGERELLI

Suzuki's GS450ST may never win you a trophy at the roadrace track, but it doesn't really matter. In your mind's eye, you'll be a champion every Sunday aboard this red speedster, scraping from turn to turn through your favorite contorted stretch of road that people in Winnebagos avoid just *because* it's so twisty.

So it's not important whether or not the GS450ST carries real roadrace credentials. What *is* important, though, is that the bike presents itself as roadrace fodder. The moment you kick a leg over the narrow saddle and grab hold of the low-slung handlebar, something inside stirs and you understand that this bike should not be kept upright. And as an on-board reference point to insure that the horizon is always tilted, Suzuki has provided a raceresque handlebar fairing. It's easy to believe in the ST's full-speed imagery.

If you start to picture the 450 as a sporty motorcycle, you're not far off-base; and you're pretty close to the way Suzuki wants you to think of the ST, too. Suzuki is perhaps the most sport-conscious of the Japanese motorcycle manufacturers, and it is well aware that a sporting image helps sell its street models. In the past, however, this image has been lavished on the large-displacement bikes at the expense of the smaller machines. For them, Suzuki used economy as a marketing tool.

So, all told, the GS450ST represents a significant break with tradition for Suzuki. Bold measures were taken in its styling, and the aggressive lines found on Eurobikes envelope the ST. These styling/



PHOTOGRAPHY: PATRICK BEHAR

sport licks include not only a fairing and low handlebar, but rearsets with a Heim-joint shift linkage as well. Suzuki felt that this sport package was spot-on for the tastes of young American enthusiasts who could afford the seemingly small price of $1739 for the ST. The design of the ST seems even bolder when you consider that it contrasts directly with the current trend towards using pullback handlebars and stepped seats to grab the young audience.

Though the styling of the GS450ST may break new ground, the bike is based on Suzuki's existing GS400/425 twins. The engine pieces are similar to those of the GS400 that was introduced in 1976, later to become a 425 by virtue of a 2mm bore enlargement. To get to the new displacement from the 425, both the bore and stroke dimensions were changed; the new 448cc engine measures out at 70mm x 56.6mm. Since the engine carries a slightly shorter stroke than the one it replaces, you'd expect it to be capable of revving higher. Which it does, posting an additional 500 rpm on the tachometer face. Surrounding the new cylinders are new squared cooling fins that provide additional heat-dissipating surface area and continue the theme of Euro-flair that is so much a part of the ST.

It's this Europen styling that Suzuki is banking on for most of the ST's success. The lines actually are an aggregate of Japanese, Italian and German styling. The seat's rear body section, front fender and handlebar area all look like they could have been lifted from a BMW. The megaphone exhaust pipes, corrugated side covers, fairing and angular seat pad could've been spawned in Italy. So far, the bike is well on its way to the Continental Look, but the Eurostyle is spoiled by the sort of gas tank that Suzuki, along with the other Japanese manufacturers, made famous in the Sixties. Still, it is this aggressive styling that catches the eye—and will eventually either make a success of the 450 twin or doom it to failure.

The bike's lines *are* important, but they lose some of their impact once you're aboard. Tucked behind the ST's bubble and feeling every inch the roadracer that this bike inspires you to be, the only lines that will concern you are the writhing lines on the road ahead of you. Then, the same basic chassis (the steering geometry has 11mm more trail) that helped the 400/425 steer well will turn that concern into sheer enjoyment. No matter what the corner—a sixth-gear sweeper on the highway or a second-gear gutter-putter around town—the ST turns its nose precisely in the direction that you dictate.

DAVID CLARK

Sport riding in a fantasy world behind the bubble

Satisfying the roadracer's itch by scratching the pavement.

Unfortunately, these trips through the twisties will be hampered by the 450's suspension, which is not as proficient at back-road-taming as the steering. Suzuki tuned the bike for a soft ride, so when you're in town and dodging potholes, the fork and shocks work out the bumps before they reach you. In fact, the 450's suspension is so soft that it's one of the most comfortable small bikes for around-town riding. And when the city streets lead to a freeway on-ramp and you unscrew the throttle a bit, you won't notice much of a change in the suspension's disposition. The ride is still smooth and supple, almost what you could expect from a large-bore touring bike. What you get is a pillowy-soft freeway ride that no other bike in this displacement category can match.

Soft the freeway ride may be, but as you can imagine, you pay for it during sport riding. Which, after all, is where the ST's styling seems to promise excellence. Although the bike's fork springs now have slightly more preload, the rebound damping has been reduced. The fork bottoms-out under even moderate braking loads, and the slightest ripple or change in the road surface when cornering hard disrupts the attitude of the motorcycle. Almost routinely, the fork and rear shocks set the 450 into a rocking motion, and despite considerable ground clearance, the centerstand touches down because the suspension is so easily compressed. If you continue to push hard, you can grind the sidestand bracket on the left side and the muffler/headpipe joint on the right.

Taking the soft suspension into account, perhaps the best method of controlled lean-and-scratch riding on the 450 is to enter the turn without jabbing the front disc brake, so the suspension isn't already settled before you apex. When you clip the apex, gently apply the throttle so the suspension's equilibrium is maintained; the only likely disruption will come from road-surface irregularities.

While the suspension may cause some problems while cornering, the bike's ergonomics won't; they're made for it. The combination of a low handlebar and the slightly rearset footpegs put you into a roadracing position, so you can stay tucked-in when cornering. Your only movement to handle a corner need be a slight drop of the inside knee and a small shift on the seat. Then you point the bike for the turn and zip through like a two-wheeled slot car. The theatrical mood of your cornering is enhanced by the road-racy bubble in front of you. You can tuck behind it when exiting turns, not to increase your speed but to make you *feel* fast. And the impression of racetrack competence is part of what the ST is all about.

If all of this guarded talk about the GS450's performance leads you to believe

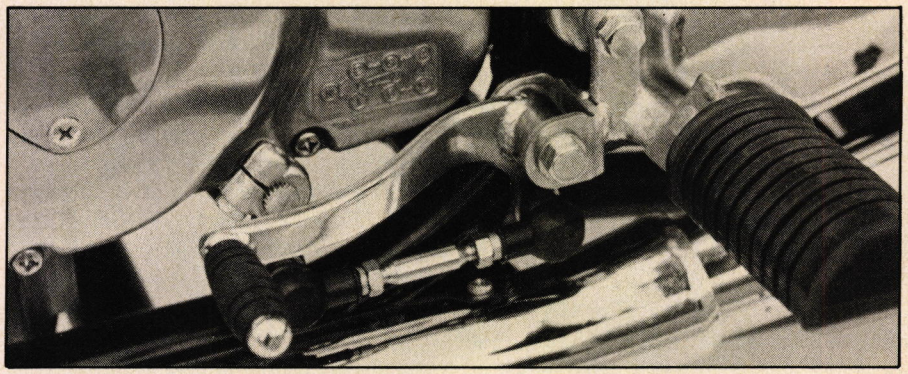
Continued

DAVID CLARK

the bike is a stone, you shouldn't. Because the bike's performance really is quite respectable when you consider that it began life as a 400cc economy commuter. And after all, the 450 produces 6.5 horsepower more than the original 400.

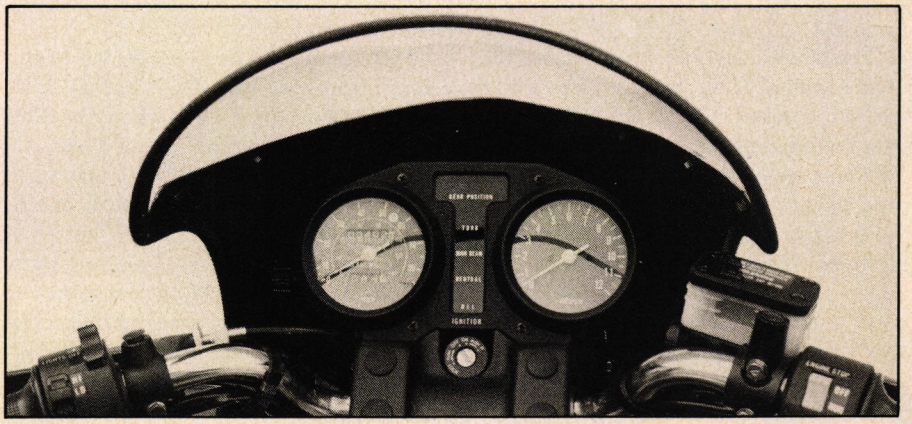
Most of that power increase resulted from the displacement boost, as well as through a pair of different mufflers. The DOHC head and valves are the same as those of earlier 400/425 twins, and the only change to carburetion is jetting required to meet 1980 standards. Cam timing for the 450 is only slightly different, more for a commitment to clean air than for performance. The 180-degree crankshaft has been retained, but instead of using a costly press-fit crank on roller bearings as with the 400/425, the 450 has a one-piece crank. The plain-bearing crank not only is cheaper to manufacture, but it's quiet in operation. And by reducing mechanical noise here, Suzuki had a bit more regulatory leeway in tuning the exhaust system for more power.

Even with the 450's additional power, the new twin still runs butter-smooth, thanks to the same gear-driven counterbalancer just ahead of the crankshaft that softened the 400/425's power pulses. Packed behind the forged crank is the same six-speed transmission from the 400/425. In



Relocated footpegs with heim-joint shift linkage

By moving pieces up, Suzuki gives you clearance to lean it over.



The business side of the sleek handlebar fairing

More for busting out of reality than for busting into the wind.

case you have trouble monitoring the close-ratio gears, the familiar Suzuki digital gear readout still is mounted on the dashboard for your reference.

Further changes to the engine include elimination of the kickstarter, chrome cam-cover caps, and the addition of a deeper clutch basket stuffed with GS750 plates. The clutch lever is integrated to the idiot-proof ignition system, so you can't start the engine without first pulling in the clutch lever. And by turning the ignition key full left, you now can lock the fork.

And there will be cold mornings, too, when you'll want to *leave* the ST locked up. If you're in a hurry, you might do better to rely on public transit than to wait through what seems like an eternity for the 450 to warm up. Plus-five-minute warm-ups are not uncommon for this bike when the temperature drops.

When the bike is finally warm enough to ride, you'll find that the racer theme is again emphasized, through the roadracer-like clutch-slipping that's required to get the GS450 off of the line. And you have to add a little throttle-blipping into the mixture so that engine rpm doesn't drop below 4000 rpm. If it does, the engine will stutter and jerk; work the clutch quickly and precisely—just like a roadracer—or you stand a good chance of stalling.

Acceleration gets better—but not by much—as the 450's engine warms up. The problem can be traced directly to the Mikuni constant-velocity carburetors, which are jetted lean through the low-speed circuits to meet EPA regulations.

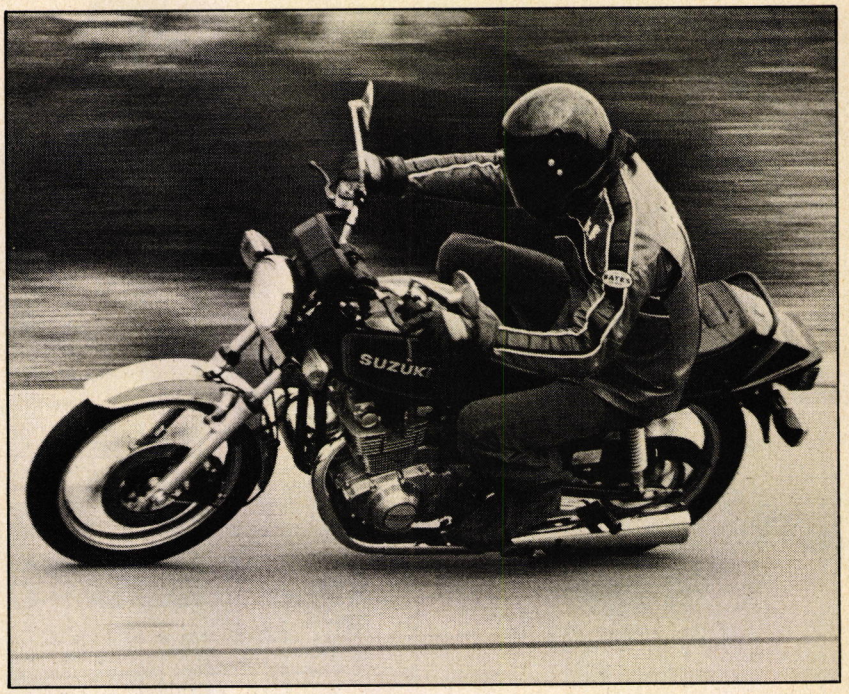
Riding the ST with its jerky low-speed throttle response is trying, and it becomes more difficult when you figure a passenger into the equation. Adding to the confusion is a seat that's not quite long enough for two, so you have to slide all the way forward. This in turn makes shifting uncomfortable, since you don't have your foot resting firmly on the rearset footpeg. In all, you're better off unloading that rider than trying to make do, since two-up travel is simply not the 450's forte.

As annoying as the jerky starts and the short seat might be, you'll ignore all that when the revs are near redline and you're flicking the bike from side to side through twisty road. The neutral steering begs for a series of convoluted turns; the ST is just that kind of a bike. And whether or not the styling catches your eye, whether or not you fancy yourself a roadracer, the low price is plenty of enticement. And that alone will probably steer many Walter Mitty roadracers into Suzuki dealerships. Never before has the price of sporting performance been so affordable. •

VIEWPOINT:

GS450ET: Less Is More

You too can love a stripper.



• Look, I'm as American as the next guy. I'm committed to grocery coupons, free enterprise and my country right or left. And normally, I'll choose more over less any day. After all, we're talking serious principles here. It's the American Way.

But while I'm nigh onto unshakable in my convictions, there's a bike out in the garage that forces me to rethink the proposition that more is always better: the GS450ET. Now, with all the foofaraw about the ST, you might have overlooked the more sedate model. Plainly, it doesn't wear the roadracy fairing or the bar-end mirrors. And even though it's easy enough to label the ET as the low-zoot version of a flashier bike, I don't think that does the ET justice. The reason is that the ET is not just the benighted, backward sibling of the ST; the ET is better. Not almost as nice. Not just as good. Better.

We aren't talking looks here. This is the talent part of the competition. You'd have to be half-blind to say that the ET carries as much charisma as its fairing-equipped twin. Nope, this discussion concerns the Great Leveler, function.

I'm prepared to consider the ST a legitimate sport bike, soft suspension and all, but just show me where it says that a sport bike has to trade away comfort to qualify as sporty. Just show me. I'll even concede that the ST's quarter-mile figures of 14.08/92.5 are better than the ET's 14.10/92.3 because of the fairing. So what? I'll even spot the ST three miles per gallon. Big deal. The fairing could be responsible for all that, but whatever it adds to the sport category is more than subtracted from the comfort listing.

Put both bikes side by side, ride them over the same road and the ET wins. And not by any small margin. That bit of frou-frou mounted to the handlebar might make you feel like a roadracer, but it's also going to tire you out. Because mile after mile, the rush of wind passing over the fairing and directed at your helmet assaults your ears. And, friend, wind noise can make an afternoon's ride seem like a cross-country haul. When you add the seating position to the ST's fairing location, what you've got is a conspiracy—one whose goal is to turn the inside of your helmet into a wind tunnel. While that might be small potatoes for a sprint around the canyon, day in and day out it gets old fast. Just for good measure throw in that the ST's lower-slung mirrors don't offer as much useful unfuzzy information as the ET's more conventional hindsight, and what you end up with is a bike that's pretty but flawed.

And right then I'll exercise some freedom of choice and opt for the ET.

—Larry Works

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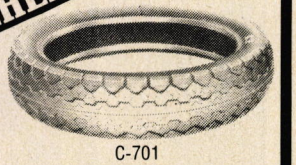
CHENG SHIN



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Yam RD350/400, thru 78, twin, black (Bassani)	**148.72**

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Ride Review

• I have never really grown fond of small motorcycles. Being 190 pounds and an inch or two on the far side of six feet, I tend to dwarf anything less than a full-grown street bike. Yet, the GS450 felt right from the first ride. It didn't seem overly tiny, yet it was agile and light, with a strong motor to pull it along. Yes, I really did start to like the 450.

That friendship could have blossomed, if only some very annoying problems hadn't intruded. But try as I might, I couldn't ignore the flat-spotted mid-range carburetion or the limp-wristed rear shocks. The fairing seemed to funnel air into my helmet and the bar-end mirrors vibrated, but these two handicaps I could live with. At least they give Suzuki the classically clean lines that attracted me in the first place. In fact, on looks alone, the ST is almost good enough to let the friendship continue.

—David Dewhurst

• On the whole, Suzuki's 450 is a terrific performer and certainly one of the most ambitious styling efforts ever seen in that class. But for me, all of the 450's excitement mutates into aggravation and blind rage every time I have to ride it away from a standstill or roll the throttle on or off out on the road. The EPA carburetion makes the engine run so feebly at low rpm that the 450 is just barely able to get underway in first gear. And there's so much lash in the driveline that every on-off or off-on throttle transition is answered with a sudden whiplash-quality lurch. So between the lurching and the engine's flat spots, a really good rider can climb aboard a 450 and begin looking like a rank novice right away. And that's reason enough to spoil my appreciation for any motorcycle, regardless of how good it is otherwise.

—Paul Dean

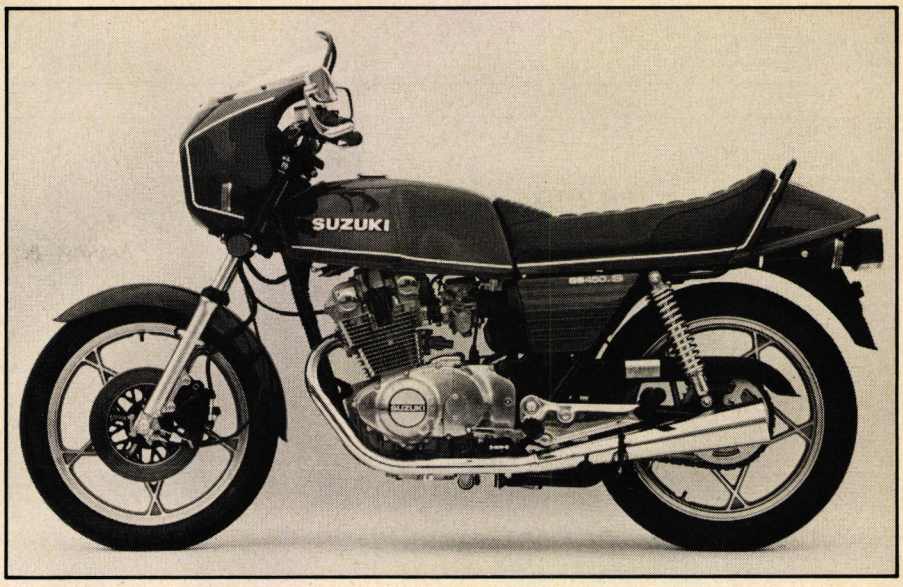
• No one could be more enthusiastic than me at the prospect of a school-boy's racer. And I guess there's few who appreciate the virtues of Suzuki's small-displacement twin as much as I do. But you still can't get me to spend much time with the GS450S. It's not the sporty bike of my dreams at all.

My unhappiness goes beyond the S-type's comic-book styling, too. This motorcycle lives up to its sporty billing only in the quarter-mile. Elsewhere its mushy and weak-kneed suspension lets me down. And the horrendous low-rpm carburetion and drivetrain lash further distract me from good times. Honda's Hawk presents a better lick in the sporting mode, to my tastes.

If I wanted comfort, I'd buy a GS425. If I wanted sport, I'd slap some shocks and a quarter-fairing on a GS400. The 450 tries to combine the two and gives me neither.

—Michael Jordan

Suzuki GS450ST



SPECIFICATIONS:

IMPORTER: U.S. Suzuki Motor Corp.
13767 Freeway Drive
Santa Fe Springs, California 90670

CATEGORY: street

SUGGESTED RETAIL PRICE: $1739

ENGINE

Type ..... four-stroke vertical twin
Value arrangement ..... double overhead camshafts
Bore and stroke ..... 71.0mm x 56.6mm
Displacement 448.2cc
Compression ratio 9.0:1
Carburetion ..... two 34mm Mikuni constant-velocity
Air filter ..... washable foam element
Lubrication ..... wet sump
Starting system ..... electric
Ignition ..... transistorized breakerless
Charging system ..... 12-volt; alternator, voltage regulator, rectifier

DRIVETRAIN

Primary drive ..... helical gears
Primary drive ratio 2.714:1
Clutch ..... wet, multi-plate
Final drive type ..... #530 chain (⅝-in. pitch, ⅜-in. width)
Final drive ratio 16/45: 2.812:1

Gear	Internal gear ratio	Overall gear ratio	MPH per 1000 RPM
I	2.46	18.79	3.9
II	1.78	13.57	5.4
III	1.38	10.53	6.9
IV	1.13	8.59	8.5
V	0.96	7.34	9.9
VI	0.85	6.50	11.2

SUSPENSION/WHEEL TRAVEL, IN.

Front ..... 35mm stanchion tube diameter/5.3 in. (135mm)
Rear ..... 5-way adjustable preload/4.0 in. (102mm)

BRAKES

Front ..... single-action hydraulic caliper, 10.8-in. (275mm) disc
Rear ..... drum, single-leading shoe

TIRES

Front ..... 3.00S18 Bridgestone Mag Mopus L303
Rear ..... 3.00S18 Bridgestone Mag Mopus S714

DIMENSIONS AND CAPACITIES

Weight ..... 397 lbs. (180.1kg)
Weight distribution ..... 46% front, 54% rear
Gross vehicle weight rating ..... 836 lbs. (379kg)
Wheelbase ..... 57.8 to 58.8 in. (146.8 to 149.4cm)
Seat height ..... 31.3 in. (795.0mm)
Handlebar width ..... 28 in. (711.2mm)
Footpeg height ..... 12.1 in. (307.3mm)
Ground clearance ..... 5.6 in. (142.2mm), at exhaust crossover pipe
Steering head angle ..... 28 degrees from vertical
Front wheel trail ..... 4.13 in. (105mm)
Frame ..... tubular mild steel, double front downtubes
Oil capacity ..... 3.2 qt (3/)
Fuel tank ..... steel, 3.7 gal. (14/), including 1.1 gal. (3.9/) reserve
Instrumentation ... speedometer, odometer, tripmeter resettable to zero, tachometer

PERFORMANCE

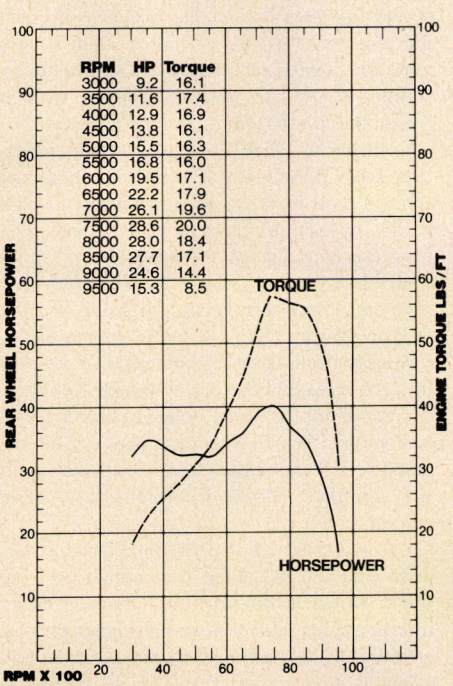
Fuel consumption ..... 55.2 to 56.8 mpg (23.5 to 24.2 km/l)
Range, maximum ..... 204 to 211 miles (328 to 339km)
Range, reserve only ..... 61 to 62 miles (98 to 100km)
Speedometer error, 30 mph indicated ..... 30 mph actual
Speedometer error, 60 mph indicated ..... 61 mpg actual
Best ¼-mile acceleration .. 14.09 sec., 92.49 mph (148.8 kph)
Top speed (calculated) ..... 100 mph (161 kph)
Stopping distance from 30 mph ..... 32 ft. (9.8m)
Stopping distance from 60 mph ..... 127 ft. (39.1 m)

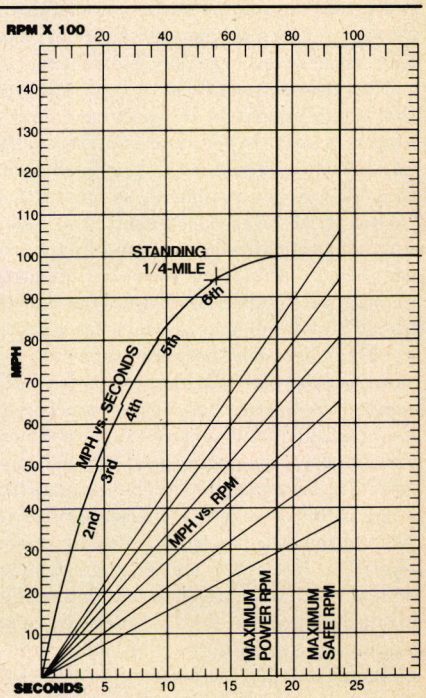
All weights and measurements are taken with machine unladen and fuel tank empty.

COMPARATIVE TEST DATA:

Make	Quarter-Mile, sec/mph	Top Speed, mph	Weight, lbs	Stopping Distance From 60mph, ft.
Suzuki GS450ST	14.09/92.5	100	397	127
Suzuki GS450ET	14.11/92.3	100	393	NA
Honda CB400T	14.37/88.6	100	391	139
Suzuki GS425N	14.59/88.8	NA	382	NA
Yamaha RD400F	14.16/90.2	98	355	129
Yamaha SR500E	14.98/84.2	92	364	132

PERFORMANCE:





Montesa Cota 349

Hands down, one of the best feet-up machines ever built.

• It's a vicious cycle, this business of observed trials. Just about every time a better bike comes along that could make trials riding easier, the clubs that lay out the events just make the observed sections that much harder to ride. So despite the ongoing availability of ever-improving machinery, a trials rider's challenge never seems to get any less difficult.

That serves to notify all of you trials types that there should be a whole new crop of tougher sections in your immediate future, because Montesa's new 349 Cota is finally available. And it unquestionably is one of those "better" trials bikes, a fact that it proved while winning an American championship, the British championship, four world-championship rounds, the Scottish Six Days Trial and the classic Scott trial, none of which are what you would call lightweight accomplishments.

Anyone familiar with Montesa trialers has to wonder how this new 349 can be so much better than the 348 Cota it supersedes, since the previous model was a mighty good bike in its own right. The answer is simple: There is more than a one-cc displacement increase between the 348 and the 349. The truth is that for reasons related to rideability and engine-efficiency, both of which were problems encountered during its development, the 348 Cota's engine was continually scaled down from 348cc until it measured only 305.8cc, whereas the new engine displaces a full 349.6cc, an increase of over 14 percent.

Cubic displacement, however, does not a better trials bike make, nor does cubic horsepower. And they never will. Only if every piece on the motorcycle is perfectly attuned to this highly specialized task can a trials bike hope to be successful, regardless of displacement. Bultaco found—the hard way, of course—that simply increasing the displacement can lead to lumpy running at low rpm, the engine speed at which trials bikes do their most serious business.

Contrary to other branches of dirt competition, trials bikes seem to work best when they achieve their healthy low-rpm torque through wildly oversquare engine dimensions. The Montesa is no exception, doing the job quite well, thank you, with a bore that's 5.4mm larger than on the previous version, yielding 43 more cc. The 83.4mm x 64mm dimensions give all the torque a rational person could want or use. Additional crankshaft inertia was needed, though, to smooth out the power pulses at low revs, so a heavier auxiliary flywheel was used on the primary-drive side of the Cota's crankshaft, and the crank's flywheels themselves were enlarged.

Given all of those improvements, it's no surprise that the 349 chugs out enough low-rpm power to win a tractor pull. There's even an inordinate amount of power at higher revs, as well, but what the experienced trials rider will appreciate most about the 349 is its impressive bottom-end response. Montesa's engineers fought the good fight while developing the 349, refusing to trade too much bottom-end for the sake of pure hill-climbing power, although the latter is a welcome addition when you're faced with a long, near-vertical climb that calls for sheer grunt. That's why the designers fiddled with more than 50 different cylinders in their quest for the ideal balance of power before arriving at the final production porting found on the new 349 Cota.

Getting all of that velvet-smooth power to the ground depends largely, of course, on having a proper gear ratio available for each kind of trials challenge. And Montesa has done a lot of work in that area, not just changing ratios, but redesigning the entire transmission. The 348's archaic three-shaft gearbox, notorious for jumping out of gear at the most inopportune moments, is no more. In its place is a more conventional two-shaft six-speed cluster. And

Montesa Cota 349

Importer: Cosmopolitan Motors
Jacksonville and Meadowbrook Road
Hatboro, Pennsylvania 19040

Category	observed trials
Suggested retail price	$2295
Engine type	two-stroke vertical single
Bore and stroke	83.4mm x 64.0mm
Displacement	349.6cc
Carburetion	one 27mm Amal slide/needle
Gearbox	six-speed
Final drive	3.80:1
Front fork	35mm stanchion tube diameter
Rear shock	5-way adjustable preload
Wheelbase (minimum)	53.0 in. (1350mm)
Seat height	31.8 in. (808mm)
Weight	197 lbs. (89.5kg)

with one more gear than in the opposition's five-speed trialers, the Montesa can have its first three ratios closely spaced for use in the sections, with the top three (as opposed to the top *two* on five-speed trialers) more widely staged for use between sections or on the occasional trail excursion.

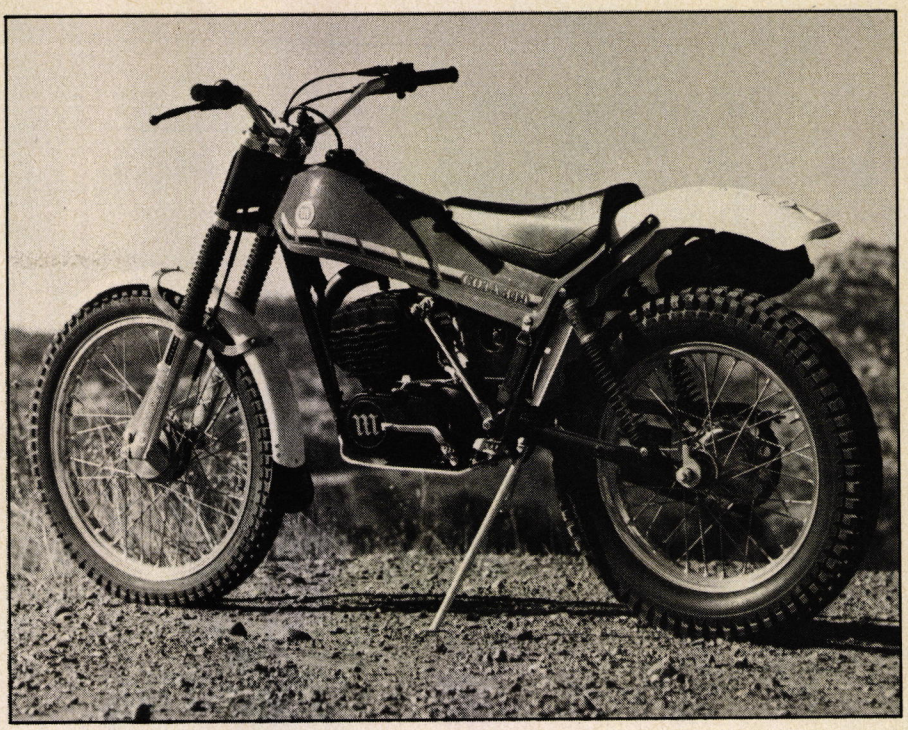
There is more newness to be found in the 349's chassis, including a slightly longer-travel fork, Telesco gas-bag shocks and a swingarm that's more than an inch longer than the 348's. The suspension changes are for obvious reasons of better wheel control, and the lengthier wheelbase aids the Cota's directional stability when it's traversing rocks and other rubble at more than a plonking pace. That greater length also improves the 349's climbing ability by making the front end less prone to lift during steep ascents. The rider still can easily loft the front wheel when he feels that it's necessary, but now he must make it happen rather than having it occur unintentionally.

Furthermore, that extra inch of length lends the Cota a great deal of added stability when it descends the near-vertical downhills and drop-offs that are commonplace in trials events. The Montesa, unlike most shorter trials bikes, doesn't feel as though it's about to topple over forward in these situations that place the front wheel almost directly under the rear wheel. But the penalty for having a longer wheelbase is slower steering response, especially on those full-lock turns where the bike must do a 180-degree pirouette in little more than its own length. That 53-inch wheelbase is rather long for a trials machine, and so it makes the rider adjust his mental perception of where the rear wheel is going. The acclimation is not all that difficult, though, and the added stability seems to be well worth the trade-off.

Other model-year refinements to the Cota include a Tecnomoto spool-type throttle that should eliminate any throttle-cable snagging, and a fuel gauge (actually, a plastic tube inset in the side of the tank) that lets the rider monitor his fuel level. There's also a drip-type oiler for the Cota's drive chain, which has both its runs fully enclosed in heavy rubber covers. And Montesa's trick, no-tools-required-to-remove countershaft sprocket still is used to expedite any between-section gearing changes that might be called for.

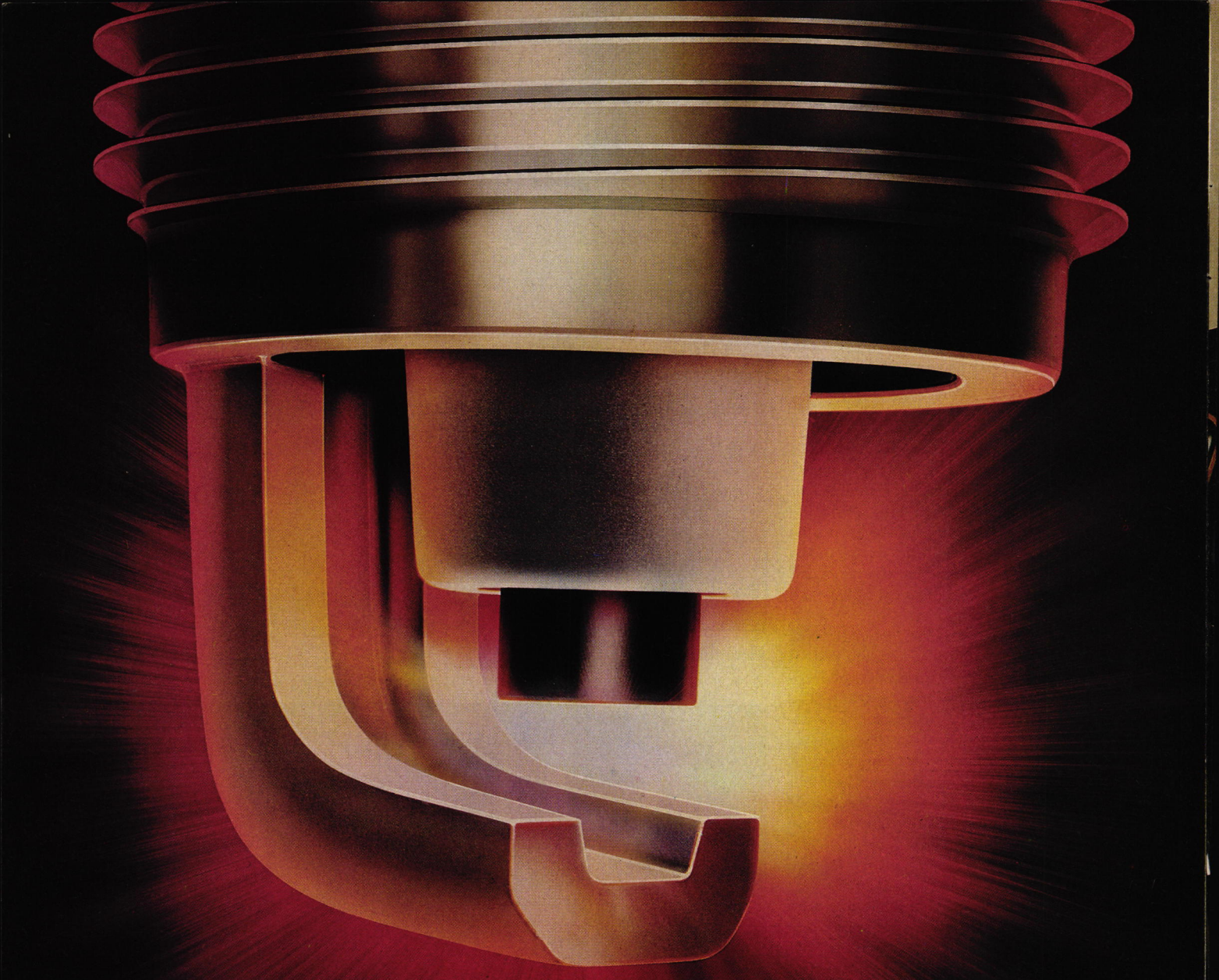
But tricks and gimmicks are not the Cota's stock and trade; competence and newfound power are. This is a trialer you can win on—if you're capable of winning, that is—a fact that is borne out by the track . . . er, *section* record of the factory-backed 349s that have been quite successful. And as is the case most of the time in trials competition, those factory Cotas were almost identical to this production model. Maybe that means that Bultaco's total domination of the world trials championship finally will come to an end. And that the sections in your local trials soon ought to be getting *really* tough.

—Len Weed



More than just a new Cota paint

A new motor and chassis make trials maneuvers easier and more predictable.



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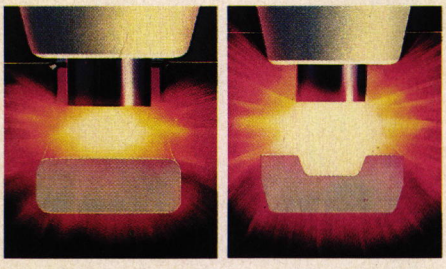

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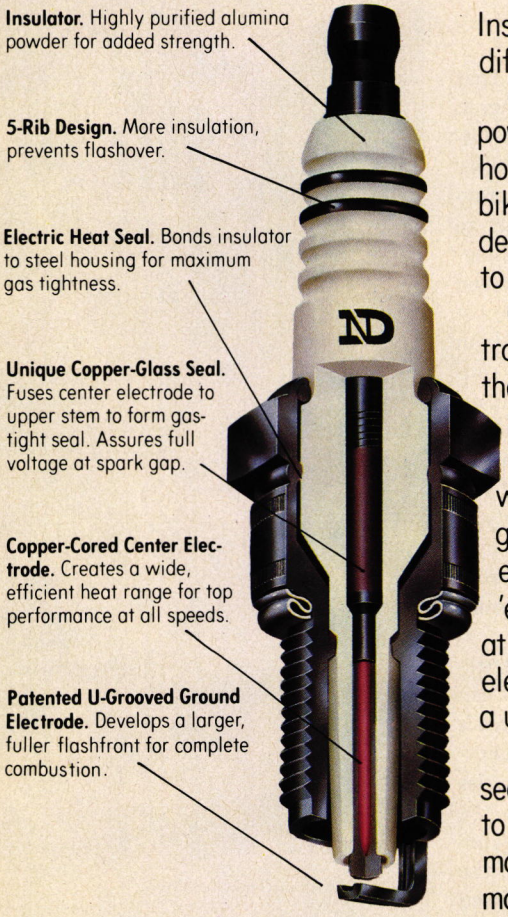

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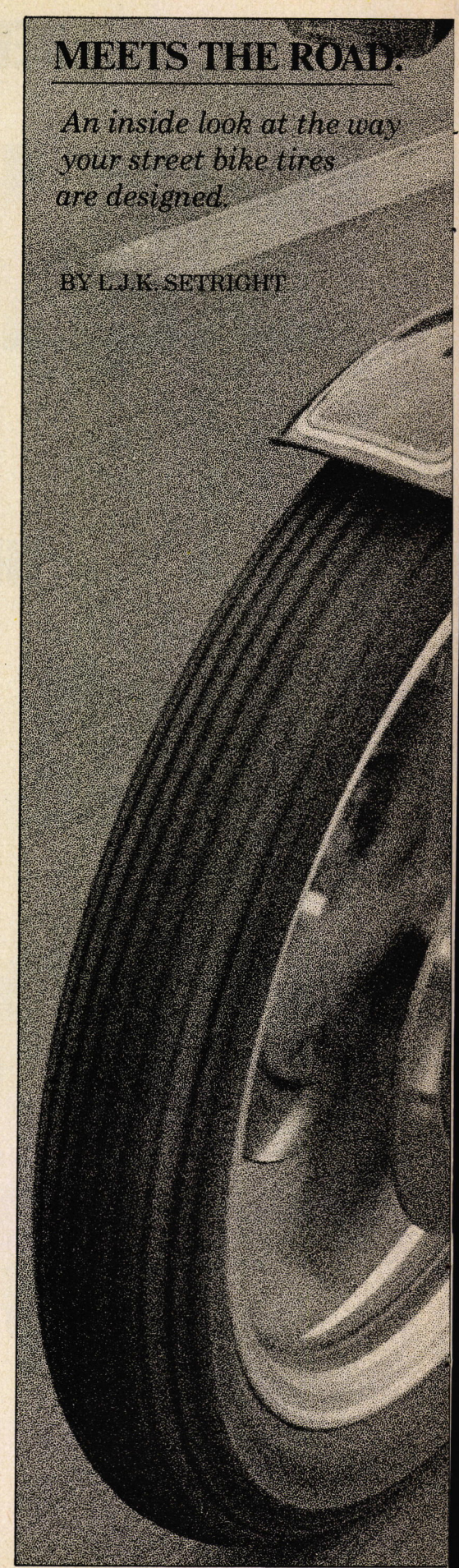
WHERE THE RUBBER MEETS THE ROAD.

Black Magic

An inside look at the way your street bike tires are designed.

BY L.J.K. SETRIGHT



• An admirable lot of professionals, today's motorcycle designers are, for as a group they have sired a generation of remarkable two-wheelers that does everything phenomenally well. Contemporary motorcycles run, ride, start, stop, turn and track far better than even the most utopian moto-visionary dreamed possible just a short decade ago.

Although that feat in itself is a conspicuous achievement, it is magnified to greater importance by the complexity of the task, the fact that the requisites of some interrelated performance functions—cornering and straight-line stability being at the top of the list—reside at opposite ends of the chassis-dynamics scale. The geometries that make a motorcycle want to be stable in a straight line are not nearly the same as those that make it want to turn, and configuring a motorcycle that can do both exceptionally well is a mammoth task, indeed.

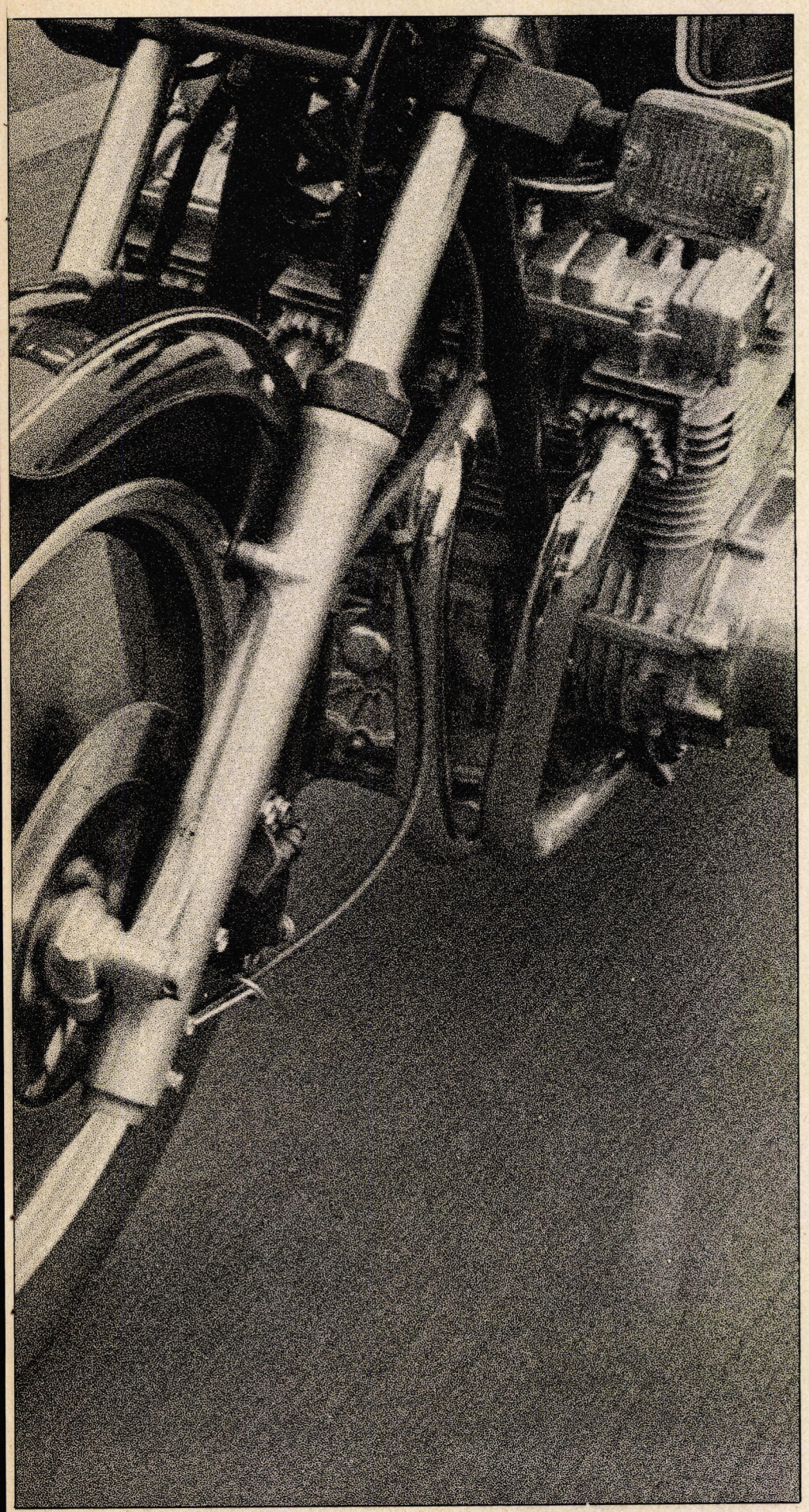
Let us not overlook, however, the contributions to bilateral performance made by the designers of motorcycle tires. Just as the people who make motorcycles have had to contend with a conflict of design parameters in certain neighboring performance categories, so have the people who make tires. A motorcycle does, after all, touch down to earth only in two rediculously small patches; and if the tires that constitute those patches do not offer precisely the *right* two footprints, then virtually everything the motorcycle designer has so carefully designed has been all for naught.

Understanding the degree of difficulty involved in designing The Right Tire does not require one to be a connoisseur of rubber products. All that's needed is an awareness of the five principal properties called for in any good tire: wet grip, long life, good handling/cornering, directional stability and adequate structural performance. Of these the first two are more or less self-evident, but the others call for a little bit of explanation.

Structural performance implies the ability of a tire to be used up to the maximum speed of its rating (S-rated = 112 mph; H-rated = 130 mph; V-rated = 150 mph) and to cope with the loads, power outputs and so on, all without failure. Cornering capability and directional stability are two rather different things that, as in the motorcycle's chassis, tend to be mutually incompatible. The former, if properly developed, makes it easy to lean a bike progressively and smoothly into a corner and to follow a pre-determined course, rather than continually having to make corrections to the steering as the bike fights back, resulting in a turning line that looks like a series of tangents rather than a smooth arc. What makes the bike tend to fight back is directional stability, which is the ability of the tire to cope with road irregularities without upsetting the stability of the bike, and to accept high speeds without developing a weave.

It is this mutual incompatibility that makes it so difficult for the tire designer to achieve a good balance of properties. Improving high-speed directional stability impairs handling and cornering; improving wet grip can be prejudicial either to tread life or to high-speed structural integrity; and conversely, improving the tread life can be bad for structural integrity, wet grip or directional stability, because all can be affected either by changes in the construction of the carcass or in the compounding of the tread rubber. And both tread compound and tread pattern affect wet grip. What is generally thought of as a "softer" compound, but more properly as one of less resilience (that is, of higher hysteresis), will give better grip at the expense of higher running temperature and diminished tread life.

Another conflict arises when the designer attempts to build one tire that can perform equally on either of a motorcycle's wheels. Obviously, the criteria of acceptable performance at the front wheel varies somewhat from those at the rear. Also, the rear tire wears out much more quickly because of its need to be the deliverer of the engine's power. And, as already pointed out, attempting to correct that wear factor could play havoc with directional stability. Maintaining this particular balance always was a headache, but some motorcycle manufacturers have been and still are more concerned about it than others. BMW, for example, stresses stability, not



only because sustained high speeds are legal on Germany's freeways, but also because the company discovered to its dismay that a lot of chassis tuning (including low and narrow handlebars) was needed to get rid of a frightening high-speed wobble in the first of the modern-generation /5-series motorcycles.

Most insistent of all on directional stability are the Japanese, and this is the main reason why, except where lightweight bikes are concerned, so many Japanese tires are specifically designed for the particular cycle to which they are fitted. It is not just a matter of exclusive tread patterns, either. The tires are tailored to their particular mounts by all the available devices of carcass construction—materials, cord angles, cord thickness, rates of twist, spacing, local reinforcements, anchoring around the bead wire, and bead construction itself, not to mention controlled stretching and/or deformation of the casing elements during the final vulcanization of the tire in the mold.

In Japan this is feasible, for the very large volume of motorcycles produced there makes a multiplicity of OEM patterns and types an economically tenable proposition. The replacement market, though, is a very different kettle of fish. Dealers do not like having to stock such a confusing variety of tires. What is wanted is a replacement tire range that can be fitted to the majority of motorcycles in use without fear of the consequences; and that is a very tall order, indeed, for some bikes are appallingly tire-sensitive.

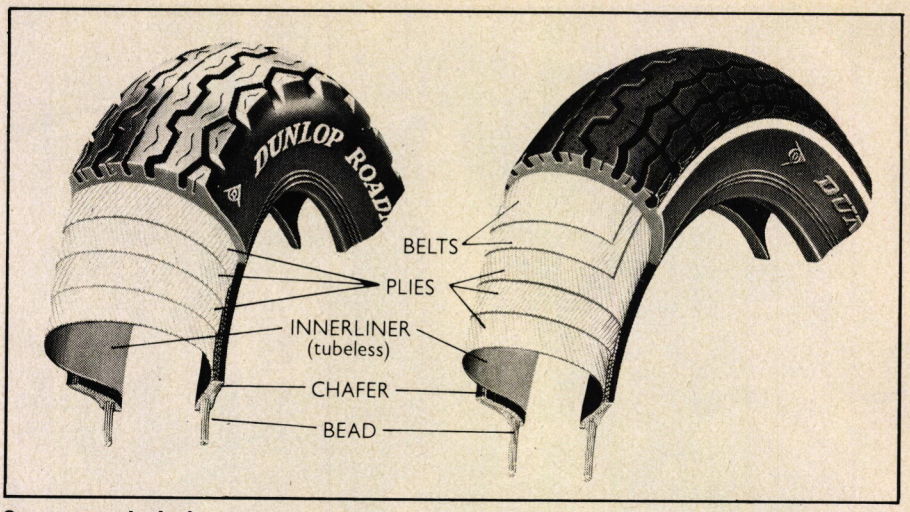
A definitive example of this dilemma can be drawn from one of the most well-balanced tires of the last decade, the Dunlop K81. It is the tire that became famous in Europe as the TT100, the designation commemorating 100-mph laps around the Isle of Man recorded by racing machinery shod with the tire shortly after it had gone onto the market for use on road motorcycles. It became the tire that every rider wanted, regardless of whether or not it was the tire that he needed. Because even though there were plenty of bikes that the K81 improved enormously, there were at least as many others that turned positively nasty on it.

As the years went by, one list grew shorter and the other grew longer. Motorcycles became more numerous, more varied, heavier and more powerful in the early Seventies, and with most of them coming from the four big Japanese manufacturers it became increasingly difficult for any tire manufacturer to produce tires for the replacement market. The Japanese matched tailor-made tires to their motorcycles so

Continued

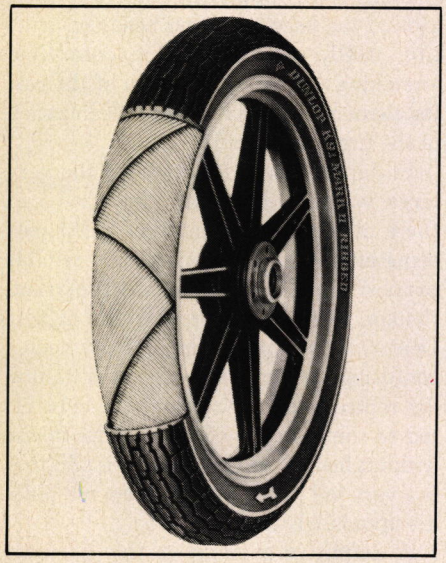
carefully that in some cases no other tire would do. Alas, there were some markets—particularly in Europe and most particularly in Britain—where the Japanese tires would not do *either*, being singularly lacking in wet grip and some of the other dynamic properties that were necessary to shield riders from disaster.

That's where, how and why the K81/TT100 filled an especially significant void in the market. It was a tire that began life with an excellent balance of properties and was, in fact, designed for the 750cc Triumph and BSA Triples. But things have changed a great deal since that then-impressive combination of rubber and machinery first appeared in 1969. In those days there were precious few motorcycles circulating in Europe, and only 10 percent of them had engines bigger than 500cc. The Triumph and BSA Triples looked and felt gigantic, but their power output was a scant 55 horsepower. Today there are far more motorcycles, at least 35 percent of which have engines *over* 500cc, and a representative 750 puts out a good 75 horsepower. That increase, which is of about 36 percent, has to be transmitted through the tires. There also were ever-increasing weights and loadings to be taken into account, plus more-powerful brakes and a greater incidence of long journeys run at higher speeds. With all these changes, the K81's original good balance of properties was being disturbed.



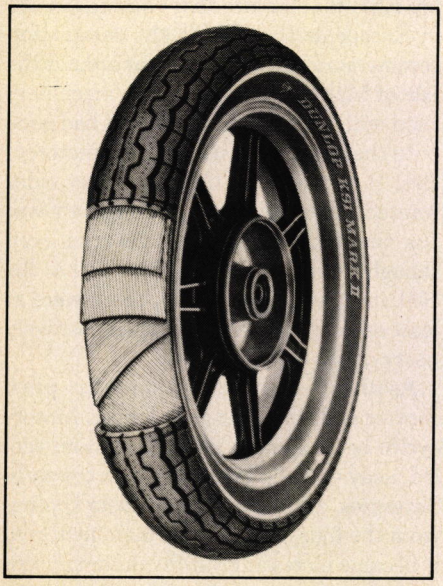
Carcass terminologies

Inside information that's valuable for the well-shod and the tireless.



Bias-ply carcass construction

The angle of the layers is critical.



Belted plies on top of the bias

Stabilizing the tread for longer life.

Some of the bikes that reacted badly to the K81 did so because its trigonal section (evolved from the very successful triangular-section racing Dunlops of the Sixties) conflicted with the steering geometries of their respective chassis. The tire's profile would produce a very rapid and pronounced lateral shift of the center of effort in the tire's contact patch as the bike was banked over from the vertical. More often than not, the problem today is one of straight-line stability, the property upon which Japanese motorcycle designers put such tremendous emphasis. And this is what has made some Japanese motorcycles unpopular for their handling, since a tire with very high directional stability is reluctant to be deflected from a straight line. And when a bike so shod is forced down into a corner it tries to straighten up again, producing the dreaded jagged and discontinuous cornering line.

Sport-riding needs aside, though, even the longest-distance of touring journeys ultimately will involve going around corners, and so a tire's handling properties are always important. Many long trips also include moving slowly in heavy traffic, and this, too, can be problematic on tires built for high directional stability. Below about 15 mph they seem to have minds of their own and are certainly not as easy to ride in such conditions as the traditionally more-responsive European tires of which the K81 was an outstanding example. And sometimes most disconcerting of all, there is the problem of twitch when crossing white lines, longitudinal surface joints and similar ridges at shallow angles. The typical Italian, French or British tire seems to ignore such things, whereas the straight-liners beloved of the Japanese and the Germans will pick a fight with every one they come across.

Resolution of these problems of incompatibility led Dunlop's designers into making different front and rear tires for the range that was to succeed the K81. Eventually they settled on a three-ply carcass of rayon cords for the front tire, because the rigidity of the material compensates for the generally meager dimensions of front tires that are highly loaded for their size, with the result being ample stability. At the rear, the elasticity of nylon cords in four plies promised good fatigue-resistance at high speeds even when carrying a full touring load. Having concluded that the different requirements of construction demanded separate casings for the front and rear tires, it was logical to go ahead and use different tread patterns for each, optimizing their properties in a way that could not be done in a dual-purpose design. Thus the new tire, which will be known as the K181, appears in two visibly different forms.

The rear tire more closely resembles the K81 in its tread pattern, except that the interrupted center groove of the older tire becomes continuous on the new one to ensure adequate through-drainage of water

when running fast on really wet roads. The front tire looks quite different, a semi-ribbed design in which the shape of the intermediate groove has been modified, partly to improve stability on rain grooves.

The K181 does have some advantages denied the stiff-walled, high-profile Continentals of the BMW and the compliant-walled trigonal K81. In particular it has a rounded low profile that not only puts plenty of rubber on the road to aid traction and braking but also improves behavior on all kinds of longitudinal ridging and grooving. And to a large extent, it restores the handling properties that might otherwise be prejudiced by the stiff sidewalls and the rigidity of the bead area.

This last characteristic was more or less forced on Dunlop by the continuing inadequacy of wheel-rim width on virtually all motorcycles. Dunlop and lots of others in the business would like to see wider rims, but although this development is constantly promised, it seems painfully slow in materializing. There is a perfectly good rule of thumb governing the relationship of rim width to tire-section width, being that the former should be about 70 percent of the latter. But one of the burdens of being a motorcycle tire designer nowadays is that with rare exception, existing wheels enforce a ratio that usually is below 60 percent and not infrequently below 50 percent. And while that may be nice for a cushy ride, it forces added compromises everywhere else.

Consequently, if ever the K181 is to earn a TT110 label molded into its sidewalls, it surely will need to be better-mounted than on a conventional rim. Given that allowance, and given a suitable bike, Mike Hailwood on its seat and the necessary lappery around the Isle of Man, Dunlop's new supertire may end up wearing that designation. But even at that, the K181 will have to prove itself an all-arounder on the highways and byways of the world and on the existing wheels of existing motorcycles.

All other tire manufacturers face the same multi-faceted problems, naturally, and all are hard at work configuring the next ultimate tire that can stand up to the hyperdrive power of today's superbikes while earning high marks in all five of the important performance categories. It's a never-ending cycle, of course, for as tire designers seem finally to catch up to chassis and engine technology, the latter can then take enough forward strides to open the gap once again. In the end, though, we all win in this worthy struggle, for because of it, motorcyclists get not only better tires, but better motorcycles on which to put them. •

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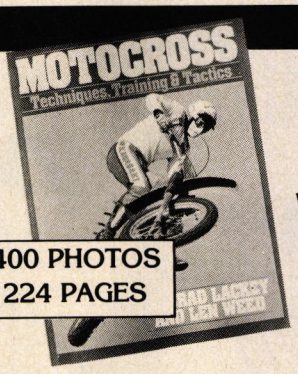

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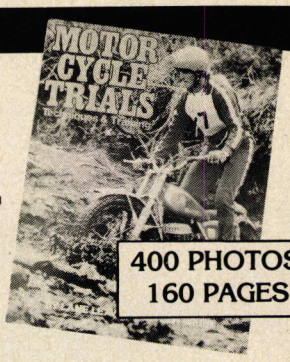

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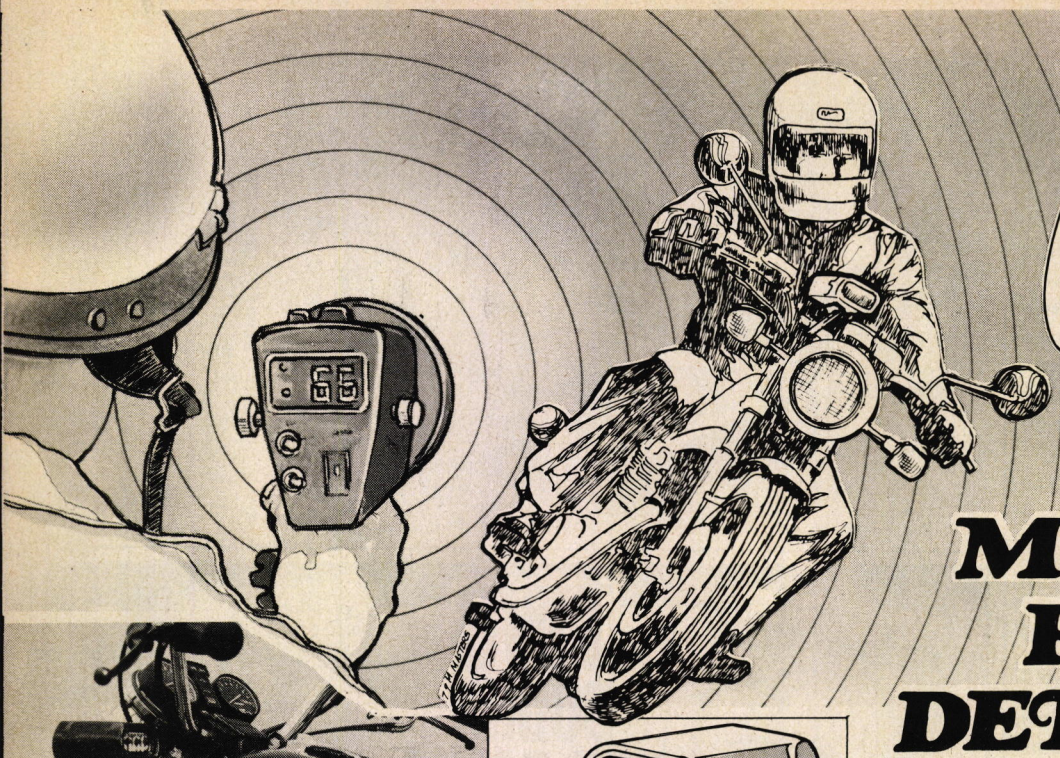
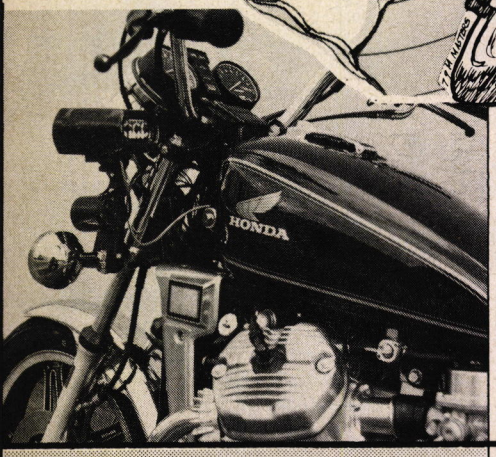
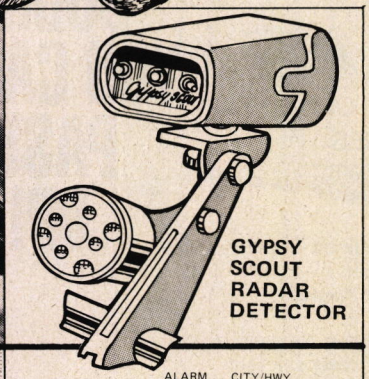


Gypsy Scout T.M.

Motorcycle RADAR DETECTORS





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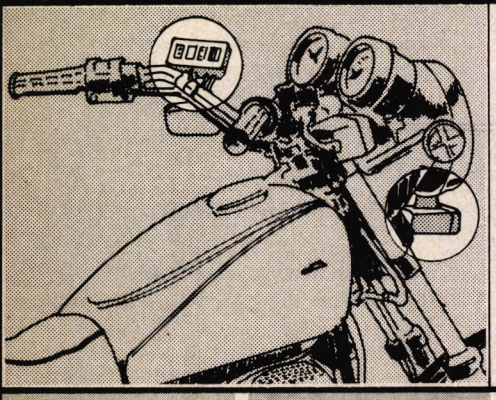

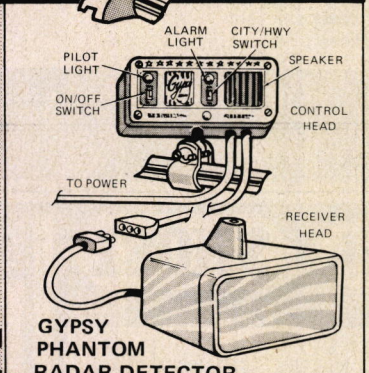

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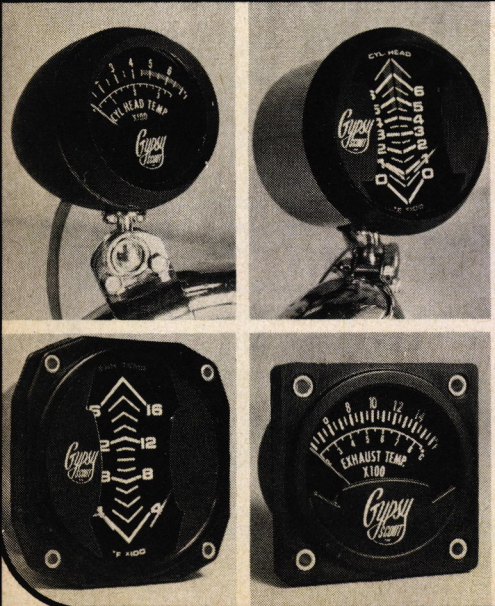

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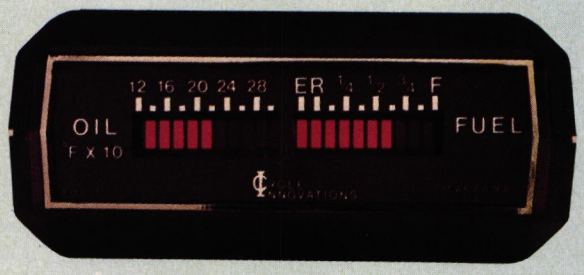
Cycle Guide's

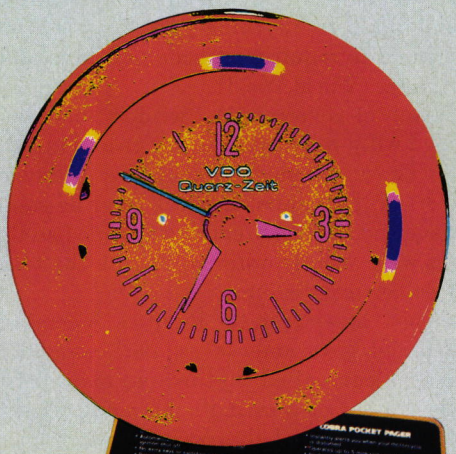
SPECIAL EDITION

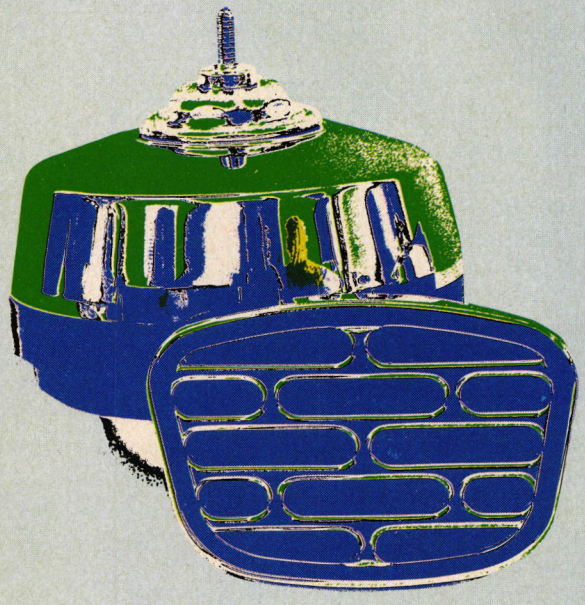
All-About Electrickery

• Gauges Galore • Anti-theft Alarms and Horns • Stereos and CB Radios • Radar Detectors

A definitive guide to the electronic tricks that can make motorcycling more fun: who makes them, what they fit and what they cost.







Electrickery means more than just oil temperature gauges, radar detectors and cylinderhead temperature readouts. It means more than illuminated dials and quartz movements, more than lights and flashes. Electrickery describes a variety of gadgets and gizmos that monitor the minute-by-minute operation of your bike.

The appearance of electrickery closely followed the general sophistication of motorcycling, and actually can make for a safer ride. Don't believe it? Ask the next Boeing 747 skipper you meet how confident he'd feel flying that bird if it were outfitted with the cockpit of a 30-year-old DC-3.

As electrickery has grown more popular in all kinds of vehicles, so too it has transformed motorcycles. Many of today's bikes feature cockpit-like instrumentation, a mixture of aviation and automotive themes. Electrical systems have been standardized, too, allowing the installation of the plug-in and bolt-on items abounding on the following pages. It wasn't always so, for in the bad old days of motorcycle electricks, you took what the factory gave you—if indeed you got anything at all. When motorcycles were not much more than motorized bicycles, there wasn't a compelling need for much information—speed was slow, mileage was low and the rules of traffic amounted to anything-goes. In fact, Uncle Sam didn't get around to requiring speedometers on all highway vehicles until after World War II.

In the absence of governmental wisdom, bike builders at first proceeded willy-nilly with the design and installation of instruments. The speedometer might have been located either to the left or the right side of the steering stem, on the fuel tank or even on the front fender if anyone had thought of it. Ammeters were strictly optional despite the tenuous nature of many electrical systems.

Things are not the same in the Eighties. A combination of consumer demand, governmental regulation and product-liability concerns compelled motorcycle manufacturers to adopt an assortment of warning lights and buzzers. In the near future, more warning lights probably will appear for the same reasons, with kickstand monitors and automatic turnsignal cancellers foremost among them.

Whatever the future of manufacturer-installed instrumentation, the present state of aftermarket electrickery should satisfy your fantasies of lights and flashes. It doesn't matter if you're riding with a full fairing or a café bubble, whether your ride is lean and American or racy and European, there are plenty of accessories to enhance your experience.

Basically, the choices are yours. Looking over this selection of electrickery should help you clarify your concept, for after all, an AM/FM cassette deck is as out of place on a café racer as the Jordache-look at a hillclimb. Put another way, one man's voltmeter might be another's CB radio. So defining your concept is all-important.

There are other electricks of the trade, too. You should monitor your electrical system and be aware of the maximum load it can take. It's always wise to carry extra fuses, and installing one before-hand when you're fitting a new piece equipment can save you from the Prince of Darkness some night. Operating radar detectors or installing helmet intercoms also broaches the law in some states, so if you're doubtful, consult your local Department of Motor Vehicles. And finally, most products come complete with detailed wiring diagrams, but if you're wary, consult with your local accessory dealer for advice and assistance.

You won't find batteries, generators, headlights or taillights, electronic ignitions or other electronic performance options among this list of electrickery. Our definition extends only to bolt-on gadgets that meter your motorcycle's functions and plug-in gizmos that just make the whole thing of riding a motorcycle more fun.

And now that you've learned the ground rules for Electrickery, here are the categories:

GAUGES

Chances are, the longer you own a motorcycle, the closer you'll come to replacing or adding to its instrument panel.

You may be spurred on in your search for electricks by no more than a desire to update yourself on the health of your engine, in which case an oil pressure gauge or oil temperature readout will attract your attention. Voltmeters and ammeters are good investments for those who ride touring bikes with lots of accessories—a voltmeter shows you whether your battery is charged, while an ammeter monitors your charging system. If your bike is turbocharged or even heavily modified, cylinderhead temperature sensors and exhaust temperature gauges are excellent early-warning systems that could save you more than just an engine. And aftermarket speedometers and tachometers generally are less expensive than their original equipment (OEM) counterparts.

COPS & ROBBERS

Devices under this heading have to do with the safety of the environment—your environment. Horns and alarms have much the same function—they warn the immediate environment that the space around your motorcycle belongs to you alone. OEM horns perform an acceptable function in this regard, but you can upgrade the power of your presence with aftermarket improvements. Motorcycles don't have OEM anti-theft alarms, however, and last year, 25,000 motorcycles were stolen in California alone, according to the California Highway Patrol. Jon and Ponch were able to locate about 75 percent of the total, but most of them had been stripped for parts by the time of recovery. It's no wonder that alarm systems are becoming more popular every year.

SOUND EFFECTS

It used to be that the only strong motive behind a motorcycle tour was a desire to clean the cobwebs out of your head. The therapeutic effect of touring in solitude has been well and fully rhapsodized in the pages of *CG*. But these days, communication, not solitude, is the trend. Today's tourer can plug into the world of people as quick as you can say AM/FM/CB/stereo cassette deck. Now you can talk to your passenger and the semi next to you, while monitoring a radio broadcast and searching for Smokey at the same time.

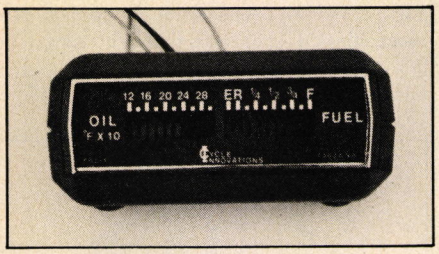
The General Electrix portion of this category describes a lot of odds and ends you'll wish you had thought of. There are taillight couplers that turn your turnsignals and brake light into emergency flashers, as well as quartz clocks and electrically warmed clothing. There's even a TV that fits into your saddlebag so you can watch the news.

ENDUROTRONICS

A small, important addendum. Six speedos, timers, roll charts and clocks to keep the enduro rider on schedule, if not on course.

So now that you've drawn a bead on what Electrickery is all about, feel free to find the kind of lights and flashes you prefer in the following pages. •

GAUGES



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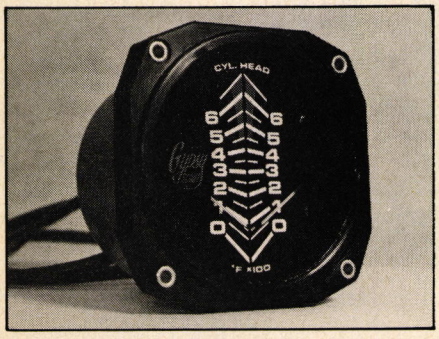
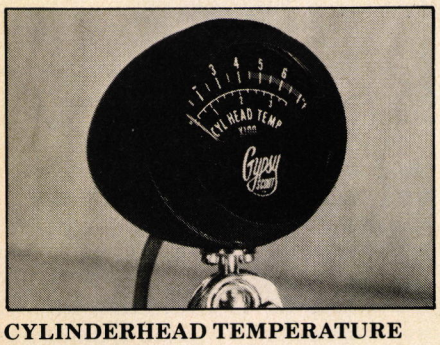
$85.75 (individually)
All solid-state integrated circuitry in gauges with LED bar-graph displays. The fuel sensor-rod eliminates floats and moving parts, and compensates for splashing due to acceleration. Compact, shock-resistant, weather- and vibration-proof, fairing or handlebar mount. One-year warranty.

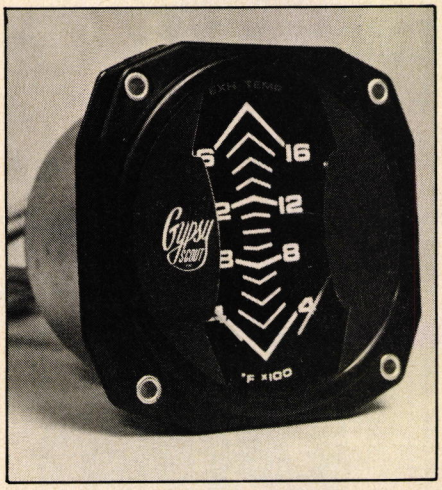


CYLINDERHEAD TEMPERATURE GAUGE
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$46.60
Lighted, reads to 700°F, single spark-plug lead. Vibration-, dust- and water-resistant. Handlebar mount (shown) or fairing panel. One-year warranty.

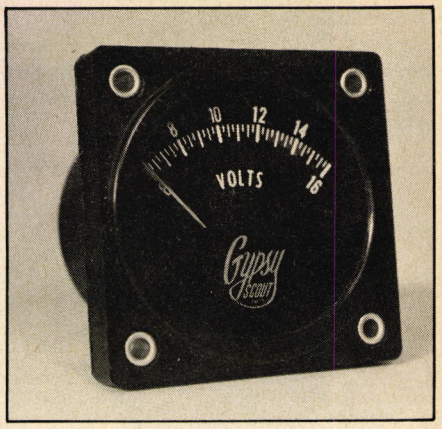


CYLINDERHEAD TEMPERATURE GAUGE (dual)
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$72.15
Two spark-plug leads for monitoring temperature of multicylinder bikes. Lighted three-inch dial reads to 700°F. Fairing panel mount (shown), or handlebar. One year warranty.

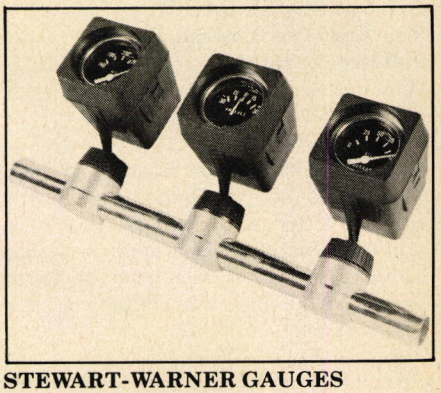
EXHAUST TEMPERATURE GAUGE
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$46.60
Lighted two-inch dial shows temperatures to 1600°F, 900°C. Single ⅛-inch header probe with stainless steel hose clamp. Handlebar (shown) or fairing panel mount. Vibration-, dust- and water-resistant. One-year warranty.



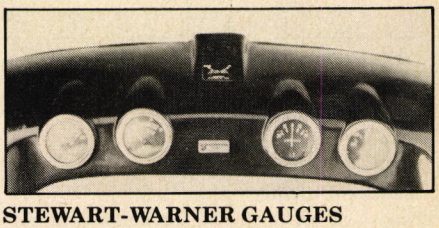
EXHAUST TEMPERATURE GAUGE (dual)
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$77.45
Two header probes with hose clamps, lighted three-inch dial reads to 1600°F only. Same specs as single gauge above. Fairing panel mount shown. One-year warranty.



VOLTMETER
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$28.60
A 0-16V readout, lighted two-inch face. Fairing panel or handlebar mount. Vibration-, dust- and water-resistant. One-year warranty.

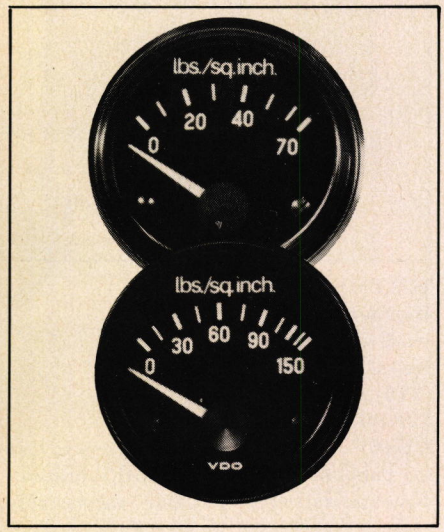


STEWART-WARNER GAUGES
M/C Enterprises
7726 Deering Ave.
Canoga Park, CA 91304
(213) 887-6520
Handlebar Mount $39.95 to $74.95
Special bracket bolts to ⅞-inch handlebar. Available either flush-mount or super-swivel (pictured) which locks instrument in any direction for easy viewing. Electric lighted gauges include sending units, wiring and instructions. Choose from oil temperature, oil pressure, ammeter, voltmeter for most big bikes. Warranty information available from M/C Enterprises.

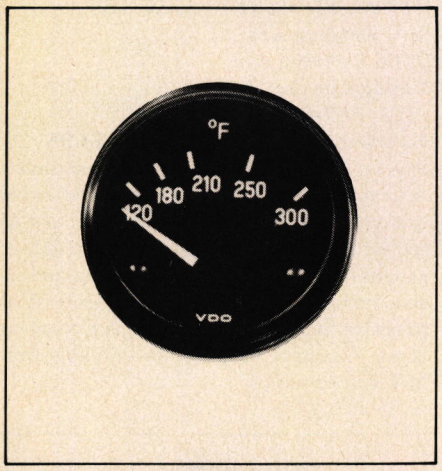


STEWART-WARNER GAUGES
M/C Enterprises
7726 Deering Ave.
Canoga Park, CA 91304
(213) 887-6520
Fairing Mount $46.95 to $54.95
A series of specially designed and lighted

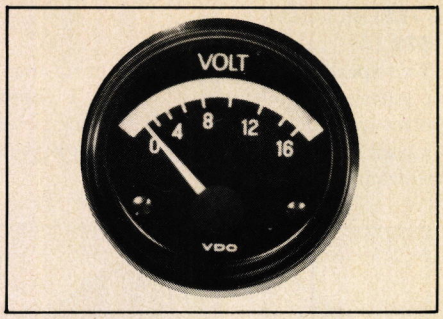
gauges made by Stewart Warner for M/C Enterprises. Oil temperature, pressure, ammeter, voltmeter come complete with sending units, wiring and instructions. Mounts on any flat surface.



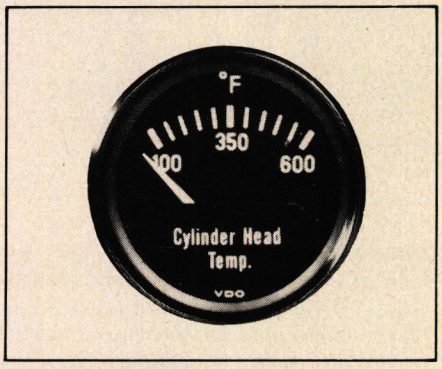
OIL PRESSURE GAUGE
Vdo-Argo Instructions, Inc.
980 Brooke Road
Winchester, VA 22601
(703) 662-1700
Wholesale Only
Warns of malfunction in oil pump, or lower-than-normal oil level. Readout calibrated to either 70 or 150 psi. Built-in switch to maintain OEM warning-light function. Lighted 52mm dial. Either handlebar or fairing mount, fits all bikes with 12V systems. One-year warranty.



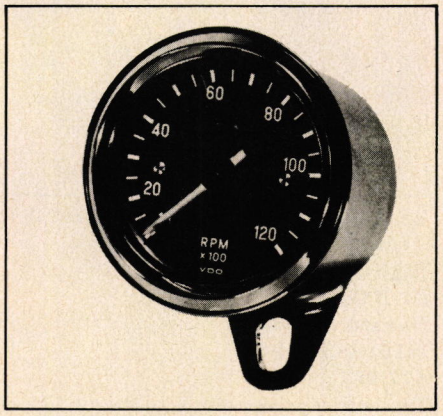
OIL TEMPERATURE GAUGE
Vdo-Argo Instructions, Inc.
980 Brooke Road
Winchester, VA 22601
(703) 662-1700
Wholesale Only
Engine oil lubricates most efficiently between 160° and 180°F. In fact, every 20° increase above 180° cuts oil life in half. This gauge features cross-coil movement, invented by VDO, for superior reliability. Handlebar or fairing mount, for 12V systems. Lighted 52mm dial, one-year warranty.



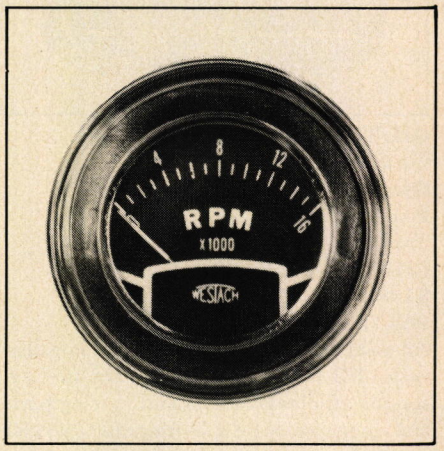
VOLTMETER
Vdo-Argo Instruments, Inc.
980 Brooke Road
Winchester, VA 22601
(703) 662-1700
Wholesale Only
VDO says more breakdowns are caused by electrical malfunctions than by mechanical faults. If so, this cross-coil movement voltmeter can help pinpoint battery, generator or wiring problems. Warranteed, 0-16V range, lighted.



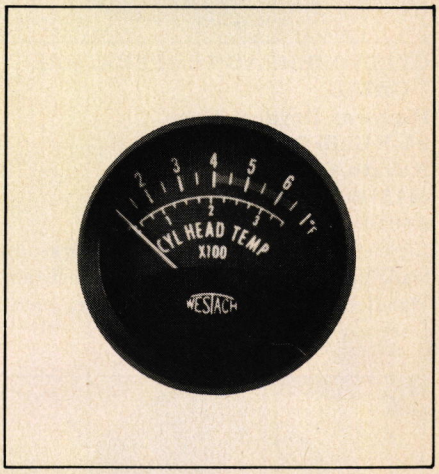
CYLINDER HEAD TEMPERATURE GAUGE
Vdo-Argo Instructions, Inc.
980 Brooke Road
Winchester, VA 22601
(703) 662-1700
Wholesale Only
Engine operating temperatures exceed oil temperatures, especially during fierce acceleration. This gauge reads to 600°F, is electrically operated and lighted. Warranteed for one year, 52mm dial, 12V.



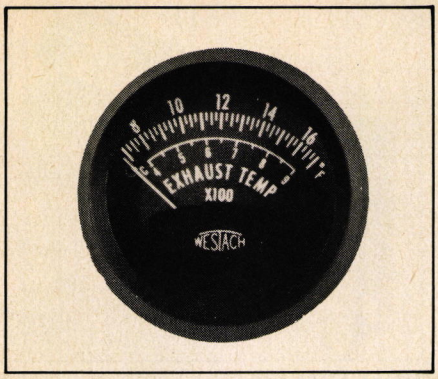
TACHOMETER
Vdo-Argo Instruments, Inc.
980 Brooke Road
Winchester, VA 22601
(703) 662-1700
Wholesale Only
Marketed especially for the rider who's into custom modifications, from chopper to café racer. Black dial, chrome-plated housing. The 2⅜-inch face reads to 12,000 rpm and is lighted. One-year warranty.



TACHOMETER
Westberg Manufacturing, Inc.
3400 Westach Way
Sonoma, CA 95476
(707) 938-2121
$44.90
For all two- and four-stroke engines, this unit reads to 16,000 rpm. Fully jeweled indicators for claimed 98-percent accuracy. Made for CDI, magneto or transistorized ignitions, and designed for panel mounting in 12V negative-ground systems. Available with U-clamp mount for handlebar. One-year warranty.

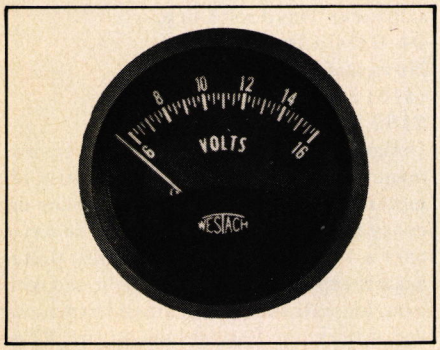


CYLINDER HEAD TEMPERATURE GAUGE
Westberg Manufacturing, Inc.
3400 Westach Way
Sonoma, CA 95476
(707) 938-2121
$23.65
Indicates to 700°F. Magnetically shielded with fully-jewelled movement, agate bearings and rugged senders. Claimed 98-percent accuracy with one-year warranty. U-clamp handlebar mount, with four-foot spark-plug lead, three-oz. total weight.



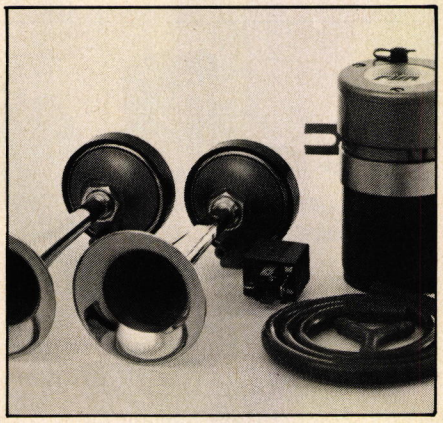
EXHAUST GAS TEMPERATURE GAUGE
Westberg Manufacturing, Inc.
3400 Westach Way
Sonoma, CA 95476
(707) 938-2121
$23.65
Especially useful for turbocharged engines where accurate temperature monitoring is crucial. Jewelled movement, agate bearings, one-year warranty. Temperature probe is hose-clamped to exhaust header, four-foot lead attaches to handlebar-mounted gauge.

OIL PRESSURE GAUGE
Westberg Manufacturing, Inc.
3400 Westach Way
Sonoma, CA 95476
(707) 938-2121
$23.65
Supplants idiot light with constant readout of oil pressure. Two models, 0-80 psi. and 0-100 psi can be either fairing or handlebar mounted. Dust and moisture sealed, shock resistant, magnetically shielded. One-year warranty, internal lighting available.

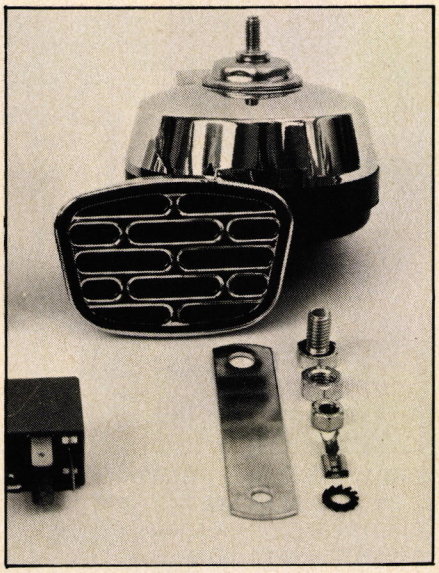


VOLTMETER
Westberg Manufacturing, Inc.
3400 Westach Way
Sonoma, CA 95476
(707) 938-2121
$17.50
Monitors voltage output and usage from a 6-16V range. Dust and moisture sealed, one-year warranty, claimed 98-percent accuracy.

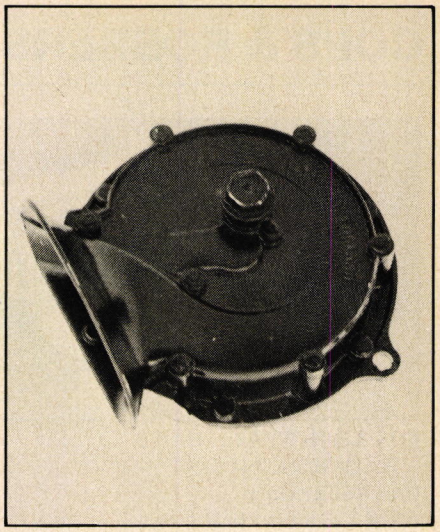
HORNS



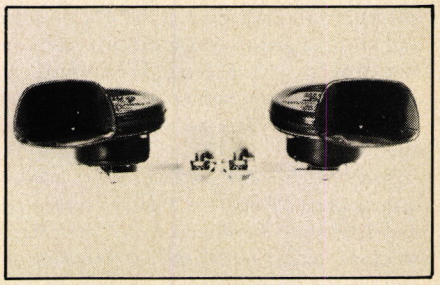
AIR HORN
Bulbs Internationale, Inc.
1503 Lenoir Drive
Winchester, VA 22601
(703) 667-3890
$34.95
Compact, mounted in fairing, yet the heavy-duty air compressor produces a 115-decibel blast. Made in Italy. Complete kit includes two chromed metal trumpets, compressor, relay and all mounting hardware.



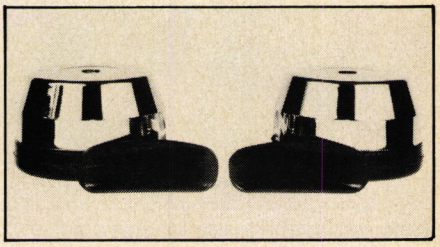
ELECTRIC HORN
Bulbs Internationale, Inc.
1503 Lenoir Drive
Winchester, VA 22601
(703) 667-3890
$32.75
Chromed horn and speaker units. Dual tone, 107-decibel rated. Fairing- or frame-mount brackets included. Relay, hardware, speakers and horn form complete kit. Made in Italy.



ELECTRIC HORN
Lucas Industries, Inc.
5500 New King Street
Troy, MI 48098
(313) 879-1920
$24.50; bracket, $2.24
The Lucas electric horn fits all bikes thanks to a universal mounting bracket. Loud (90-decibel at 50 feet) three-harmonic tone. Standard ¼-inch leads required.



DUAL TONE ELECTRIC HORNS
Peterson Manufacturing Co.
4200 East 135th Street
Grandview, MO 64030
(816) 765-2000
Wholesale Only
Quality-built universal electric horns with loud high-low tones. For all 12V systems, supplied with all mounting hardware.



DELUXE DUAL TONE ELECTRIC HORNS
Peterson Manufacturing Co.
4200 East 135th Street
Grandview, MO 64030
(816) 765-2000
Wholesale Only
Slick, chrome-plated dual-tone horns. Extra-loud 115-decibel high-low tones. Supplied with universal mounting brackets.

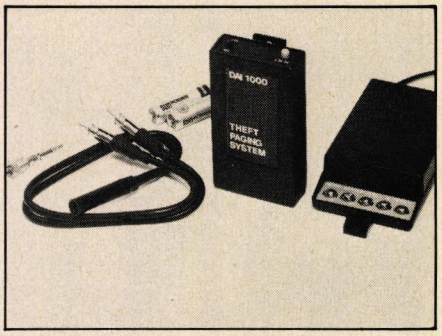
COPS & ROBBERS

FOX XK (RW) ALL-BAND RADAR DETECTOR
ComRadar Corp.
4518 Taylorsville Road
Dayton, OH 45424
(513) 236-3591
$179.00

Sensitive to all traffic radar signals, both X and K bands, at all polarizations. Reacts to continuous wave or pulsed signals. Monitors both bands simultaneously using separate antennas, detectors, amplifiers and microwave cavities for each frequency. One hundred percent solid-state circuitry with selective filtering to eliminate false signals. High-gain antennas, continuous audible (70 decibels) and visible alarms, connects to any 12V negative-ground system. Sensitivity control for city and country riding. Compact weatherproof construction, weighs eight oz. Kit includes antennae module, wiring, plug for cigarette lighter and control box. Can be wired into ignition. Fasteners include spring clip and adhesive "hook and loop." Handlebar brackets and/or fairing-mount brackets and bolts must be purchased separately. Customer assumes all installation responsibility. One-year warranty from date of purchase against defects in material and workmanship.

FOX XK SELF-CONTAINED ALL-BAND RADAR DETECTOR
ComRadar Corp.
4518 Taylorsville Road
Dayton, OH 45424
(513) 236-3591
$139.00

Compact, cigarette-pack-size solid-state detection unit. Total length, with antennas, 7⅜ inches. Both audible (70 decibels) and visual alarms integrated into unit to eliminate control box. Includes sensitivity control for city or country riding. Same design and engineering specs as the FOX XK (RW) above. Normal detection range claimed to be three to five times the radar operating range when radar in clear view. Fasteners include spring clip and adhesive "hook and loop." Handlebar clamp available for $3.00. Not recommended where there is a chance of exposure to adverse weather or moisture. Customer assumes all installation responsibility. One-year warranty.

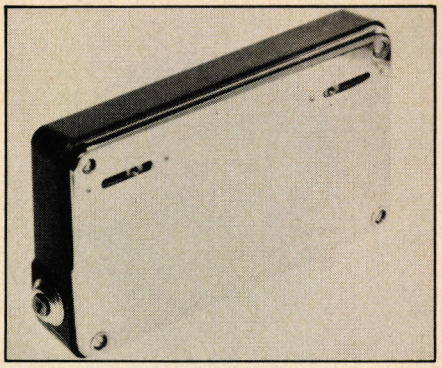


DAI 1000 SOUND SENSOR CYCLE ALARM
D.A.I. Product Development Corp.
740-D Sierra Vista Avenue
Mountain View, CA 94043
(415) 969-3995
Wholesale Only

Solid-state electronic sound-sensing system. No movement of bike is necessary to activate alarm. Sensitivity adjustment screens outside noise, unit operates in any parking angle. Can be mounted under seat to protect external off/on switch. Distinctive horn sounds 60 seconds at 110 decibels then re-arms automatically.

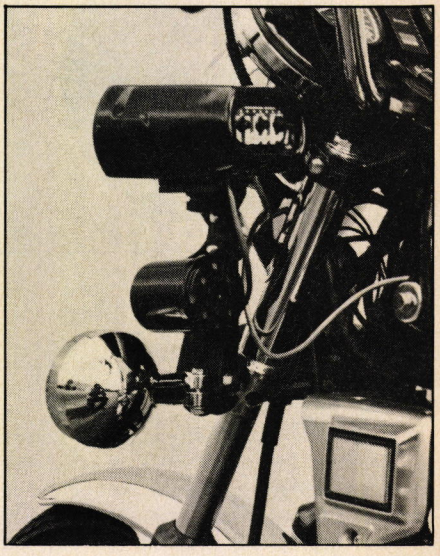
DAI 1000 SILENT THEFT PAGING SYSTEM
D.A.I. Product Development Corp.
740-D Sierra Vista Avenue
Mountain View, CA 94043
(415) 969-3995
Wholesale Only

Compatible with DAI 1000 Sound Sensor alarm. Transistorized self-contained transmitter is crystal-controlled and fully shock-mounted. Receiver features two-tone sequential decoding to resist false triggering, requires two AA alkaline batteries. Suitable for pocket or belt, receiver will beep until manually reset.



DUALARM 200
Dualock
211B S. Whisman Road
Mountain View, CA 94041
(415) 969-3627
$49.95

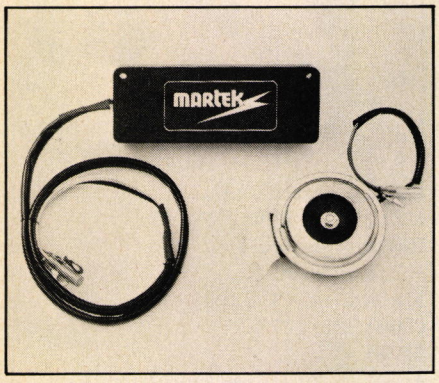
Lightweight, durable ABS-plastic housing and 22-gauge, chrome-plated, steel front cover protect internal components. Electronic motion sensor adjusts to any parking angle. Dual horns, 110-decibel at motorcycle, are protected from outside tampering. Alarm sounds for 45 seconds and then re-arms automatically. No external wiring, mounting hardware designed to prevent removal of alarm. Weatherproof, requires two nine-volt alkaline batteries.



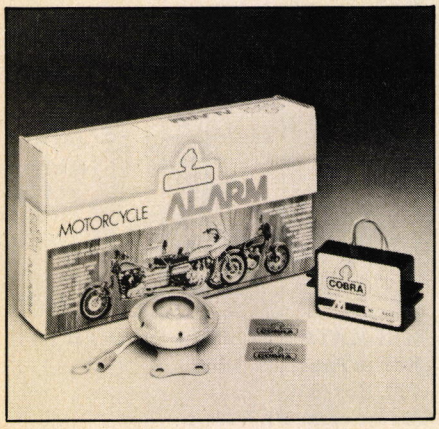
GYPSY SCOUT MOTORCYCLE RADAR DETECTOR
Highway Drydock Corp.
94-B Galli Drive
Novato, CA 94947
(415) 883-2496
$169.25

Designed specifically for the harsh environment encountered in the daily operation of a motorcycle. Formed aluminum housing and epoxy fiberglass circuit board provide service over a wide range of temperatures, protect against exposure to direct sunlight and moisture, are anti-shock- and vibration-mounted and waterproof. Special built-in circuits enable unit to operate near to all motorcycle ignitions, including unshielded 40,000V electronic systems. Unit detects all police radar

including new mobile-pulsed K-band. Detects "scatter" for advance warning, optimum range one to four miles depending on weather and terrain. Receiver houses a parabolic antenna with tuned waveguide. Control switch for town or country operation. Self-test feature. Green pilot light glows when unit is in use, red warning light and 90-decibel alarm activate when radar is detected. Kit includes receiver, alarm speaker, handlebar-mount hardware, wiring and instructions. Concealed fairing-mount angle bracket extra. Thirty-day money-back trial period, one-year warranty.



MONGOOSE ANTI-THEFT ALARM
Martek Products, Inc.
3609 W. MacArthur Blvd.
Santa Ana, CA 92704
(714) 751-7901
$64.95
Compact, hides under tank, seat or in fairing. Sound sensor and motion detector arm automatically when ignition turned off. Fits all bikes, operates in any position, all functions controlled by ignition key. Sensitivity adjustable after installation, horn pulsates for 15 seconds at 110 decibels, automatic reset. Two-year factory guarantee.



COBRA MOTORCYCLE ALARM
Micronics International, Inc.
P.O. Box 6319
Anaheim, CA 92806
(714) 632-5080
Wholesale only
Detects vibration as well as tilt, no adjustments necessary for the patented motion sensor. Solid-state electronics, vibration- and weatherproof. Activates automatically through the ignition switch. Feature disables unit for motorcycle servicing. Pulsating 110-decibel horn arms itself one minute after ignition is turned off, automatic reset after bike is disturbed. One year warranty.

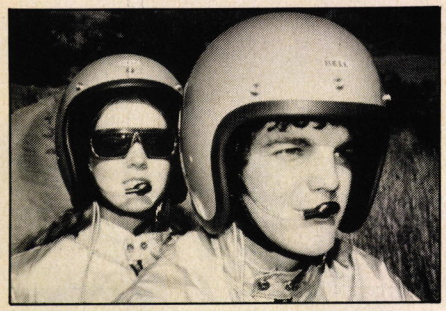
COBRA POCKET PAGER
Micronics International, Inc.
P.O. Box 6319
Anaheim, CA 92806
(714) 632-5080
Wholesale only
Designed for use with the Cobra Alarm. Transmitter installs out of sight and connects to alarm with a single wire. Receiver resembles doctor's beeper, with manual reset. Coded radio signal and two-tone sequential decoding system resist CB interference and false triggering. Shock-mounted transmitter has typical range of one-half mile, effective to one mile under ideal conditions.

ELECTRONIC MOTORCYCLE ALARM
Milo Systems
699-D S. State College Blvd.
Fullerton, CA 92631
(714) 738-1387
$58.80
Solid-state electronic integrated circuit system. Encapsulated in epoxy for water-, dust- and vibration-proofing. Compact, "thumb-size" unit can be mounted anywhere, even inside headlight. Motion dectector requires no adjustments, automatically arms 60 seconds after ignition switches off. Button disables unit for bike maintenance. Siren sounds 108-decibel warning, alarm resets after one-minute delay. Two-year warranty.

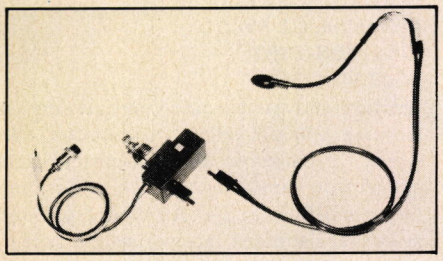
SILENT ALARM SYSTEM
Milo Systems
699-D S. State College Blvd.
Fullerton, CA 92631
(714) 738-1387
$147.95
Ignition-activated sensor/computer detects movement or tilt, triggers transmitter, then resets. Crystal-controlled transmitter is integrated into same module with sensor/computer and fully anti-shock mounted. Solid-state transistorized receiver weighs four oz. with two AA alkaline batteries. Two-tone sequential decoding, manual reset beeper, ideal range one to five miles.

THEFT ALERT 500A
Page Alert Systems, Inc.
23900 Hawthorne Blvd.
Torrance, CA 90505
(213) 378-8596
$135.00 (approx.)
Silent alarm system featuring a mercury tilt-switch motion detector. Transistorized transmitter can be hidden under seat, in fairing or saddlebags. Sends an individually coded warning to an AA alkaline battery-powered pocket beeper, ideal range one mile. Two-tone alternative sequential decoding resists false triggering. May be used in conjunction with an audible alarm. Installation components included. Six-month warranty.

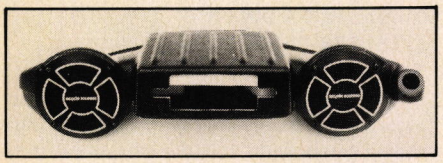
SOUND EFFECTS



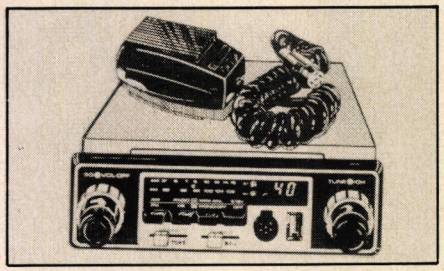
BI-COM TWO-WAY INTERCOM
ACS Communications, Inc.
4865 Scotts Valley Drive
Scotts Valley, CA 95066
(408) 438-3883
$9.95
A sound-powered system consisting of two headsets connected by lightweight acoustical tubing. All plastic, non-electric, no maintenance. Adjusts to fit under any helmet, total weight three oz. Quick-disconnect tubing, extensions available for sidecar use.



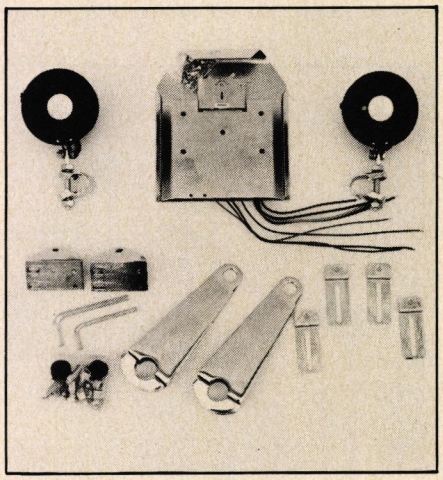
CY-COM CB HEADSET
ACS Communications, Inc.
4865 Scotts Valley Drive
Scotts Valley, CA 95066
(408) 438-3883
$49.95
This two-part system consists of a lightweight headset made of plastic tubing which conducts sound to and from a handlebar-mount electronics case. Voice pickup tube is fully adjustable, acoustic cup blocks wind noise. Solid-state electronics for distortion-free transmission. Case houses speaker-phone, mercury battery and amplified powermike. Thumb-operated push-to-talk switch. Quick-release plugs. Kit includes headset, electronics case, plugs for mike and phone jacks for all CBs. Limited warranty.



CYCLE SOUND SPEAKER SYSTEM
Cycle Sound Systems
P.O. Box 41
Bulverde, TX 78163
(512) 438-2211
$64.95 to $69.95
Model 1VT5 to fit Vetter fairings is pictured. The Cycle Sound radio housing is molded of durable, high-impact ABS plastic in black leather finish. Speakers are heavy 6.8-oz. ceramic magnets and deliver 12 watts RMS per channel, with four- to eight-ohm impedance. Speaker grill minimizes weather damage and is shock-resistant. Kit includes two speakers with grills, housing, complete hardware and instructions. Six-month warranty. Catalog features housings for most fairings plus full line of available audio equipment.



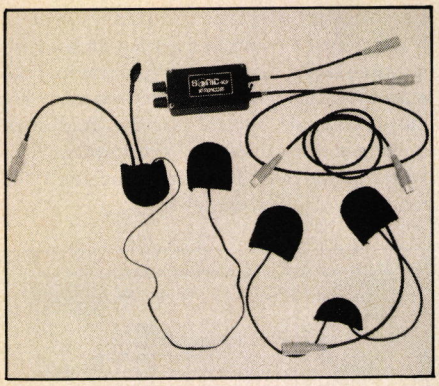
AM/FM STEREO/40-CHANNEL CB
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$249.95
A full-feature combination transceiver with LED channel indicator. Automatic noise limiter switch, tone and balance slide controls, detachable microphone. Fits most radio housings and fairings, kit includes trim plate and all mounting hardware. Catalog and warranty information available from DVH.



SCENIC SOUND MOTORCYCLE SOUND CENTER
Great State Manufacturing Corp.
P.O. Box 376
McQueeney, TX 78123
(512) 557-6736
$59.75 and $75.00 (chrome)
Variable-height audio component mounting brackets, a quick-release locking slide mount, and directional weatherproof speakers. Adapts to most CBs, radios, tape decks, etc. Can be mounted on handlebar or fairing. Component locks in place, easy removal with key for security. Rubber grommets isolate vibration from the slide mount. Three-watt, eight-ohm speakers in a non-glare flat black finish. Kits for either ⅞-inch or 1-inch handlebar. Catalog available.

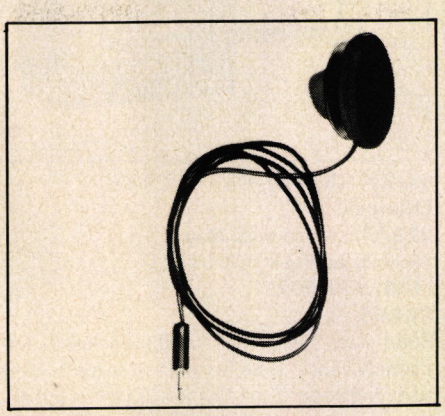
HELMATE TWO-UP KIT
Rol'on America, Inc.
P.O. Box 2300
Melbourne, FL 32901
(305) 723-1177
$5.95
Accessory kit for use with Helmate speakers that enables operator and passenger to plug into same sound source. Kit includes six-foot cable, Y-adaptor cable, cable ties and a belt clip.

HELMATE HELMET SPEAKER KIT
Rol'on America, Inc.
P.O. Box 2300
Melbourne, FL 32901
(305) 723-1177
$12.95
An auxiliary speaker designed to be mounted to the rear of any standard protective helmet. The unit is weatherproof and offers minimum wind resistance when properly mounted. Case is molded high-impact thermoplastic, 2⅜-inch diameter and 1⅛-inch deep. Kit includes speaker, 4½-foot cable and jack adaptor, adhesive strip.

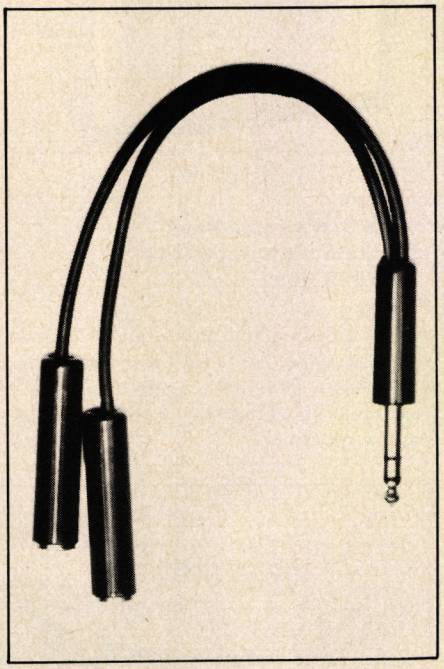


SONIC INTERCOM
Webco (U.S. Distributor)
P.O. Box 429
Venice, CA 90291
(213) 399-7724
$197.95
Voice-actuated intercom system with control-box leads for radio, cassette or CB connection. Allows pilot and passenger to converse over audio input, does not cancel sound. Full-face helmet mike is encased in impact-absorbing material and Velcros in front of mouth. Open-face design with flexible extension tube available. Two headsets per pack, for either open-face, full-face or mixed helmets. Cast alloy control box finished in matte black, powered by 9V battery. Mounts on tank or dash with rubber suckers, has individual volume controls. Stereo-effect earphones attach inside helmet with Velcro, additional stick-on pads supplied. Universal jack for audio component connection. One-year warranty. Solo headset, without mike, available for $69.95.

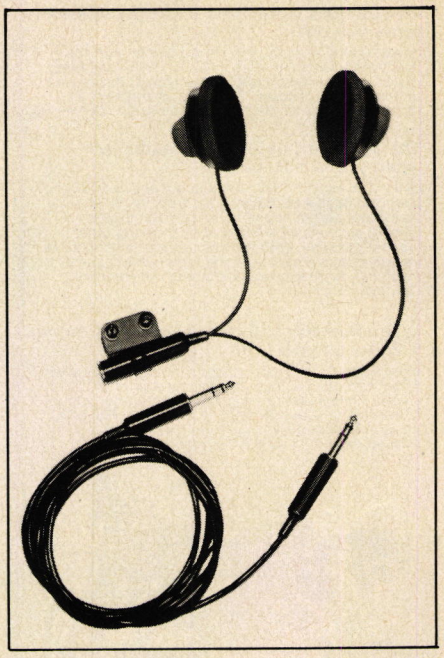
MC-900 CB BIKE MIKE
Superex Electronics Corp.
151 Ludlow Street
Yonkers, NY 10705
(914) 965-6906
$42.95
Dynamic microphone, streamlined and shaped for minimum wind noise. Fully adjustable gooseneck clamps to helmet. High-definition ear speaker mounts inside helmet with Velcro. Push-to-talk switch clamps on handlebar, quick-release connectors used for fast dismount, clothing clip provided to prevent cable pull. Kit includes CB adaptor, mike, speaker, all cables, connectors and hardware. Limited warranty information available from Superex.



MC-8 HELMETPHONE
Superex Electronics Corp.
151 Ludlow Street
Yonkers, NY 10705
(914) 965-6906
$19.95
Single ear speaker for high-fidelity reproduction. Adapts to portable radios, tape players, etc. Mounts inside helmet with Velcro patch. Kit includes speaker, Velcro, five-foot cable with mini-plug. Limited one-year warranty.

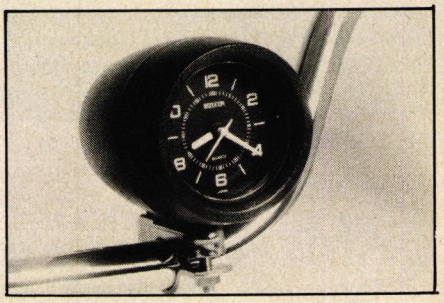


MC-Y ADAPTOR
Superex Electronics Corp.
151 Ludlow Street
Yonkers, NY 10705
(914) 965-6906
$7.98
For use with MC-88 Helmetphone (below) only. Adaptor cable with connectors for both operator and passenger stereo Helmetphone reception.



MC-88 HELMETPHONE
Superex Electronics Corp.
151 Ludlow Street
Yonkers, NY 10705
(914) 965-6906
$44.95
Dual-ear speaker set for connection to mobile stereophonic high-fidelity components. Compact, double-foam coupler for comfort and optimum reproduction. Speakers Velcro-mounted inside helmet. Quick-release disconnector clamps on helmet. Designed not to exclude external sounds such as traffic noise while still providing a wide-range hi-fi sound. Kit includes speakers, Velcro mounts, quick-release disconnect, five-foot cable with stereophone plug at each end. Limited one-year warranty. NOTE: Some states prohibit devices which impede environmental sound to both ears while operating a motor vehicle.

GENERAL ELECTRIX

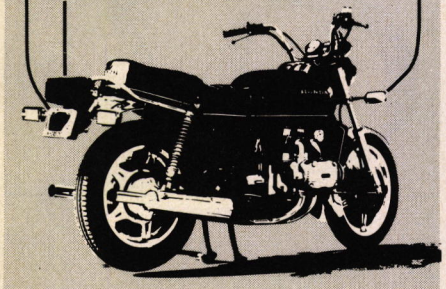


QUARTZ CLOCK
Beck/Arnley Corporation
548 Broad Hollow Road
Melville, Long Island, NY 11747
(516) 694-7730
$69.95
Quartz-controlled for accuracy. Resettable hour, minute and second hands. Self-starting,

The Dualock Automatic Turnsignal Canceler turns you off!
Avoid turning a signal into a road hazard with this easily installed solid state canceler. With only three wires to connect (no cutting or splicing!) this sealed unit installs in minutes. The adjustable timer turns off your lights, even if you forget. Only $24.95.

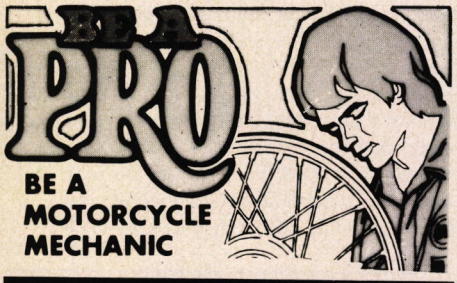
The Dualock Dualarm is a loudmouth when you're not there!
Deter thieves with this weatherproof self-contained alarm. A tough ABS housing protects the solid state adjustable sensor sounding off through dual horns–after 45 seconds of 110db noise, the alarm automatically rearms. With interlock switches behind the chrome-plated steel cover and impossible-to-remove mounting hardware, the Dualarm is tamperproof. Only $49.95.

The Dualock Multi-Brite Taillight Coupler lights up your life!
Improve visibility and safety with this simply wired taillight coupler (only 7 color-coded wires!). Turns rear signals into running and brake lights, without interfering with turn-signal functioning. The solid state Multi-Brite–a tiny sealed package–a big improvement in your safety. Only $24.95.



See your local dealer or write for information and order form to:

DUALOCK 211B South Whisman Rd Mountain View, CA 94041 (415) 969-3627



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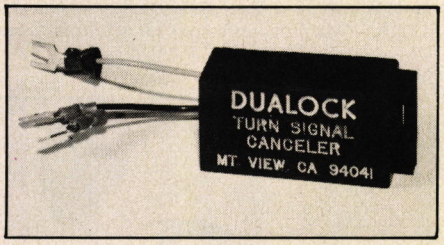
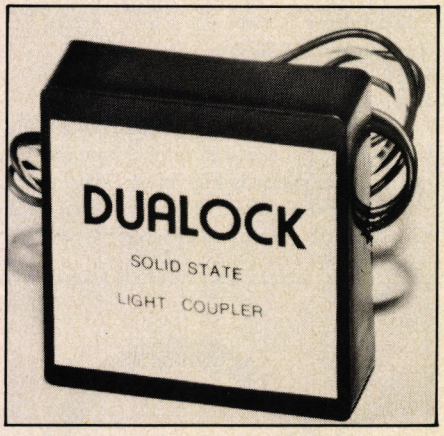
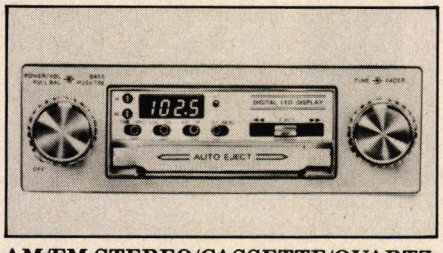
plugs into any 12V system. Water- and dustproof, shockproof mechanism. Universal mounting bracket, fits ⅞-inch handlebar. Made in Japan.



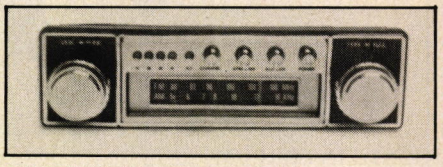
TURN SIGNAL CANCELLER
Dualock
211-B S. Whisman Road
Mountain View, CA 94041
(415) 969-3627
$24.95
Solid-state electronics, totally enclosed. Adjustable cancel time from 10-90 seconds after turn indicator first flashes. Easy to install, three wires to connect, compact.



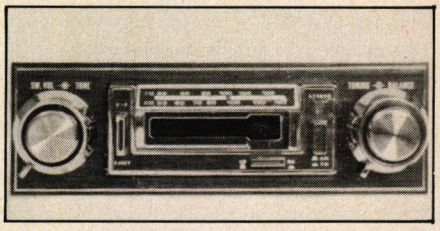
TAILLIGHT COUPLER
Dualock
211-B S. Whisman Road
Mountain View, CA 94041
(415) 969-3627
$24.95
Adds greater visibility for safety by coupling rear turn-signal lights with rear running and brake lights. Does not impede turn signal or rear brake light function. Solid-state, compact, weatherproof.



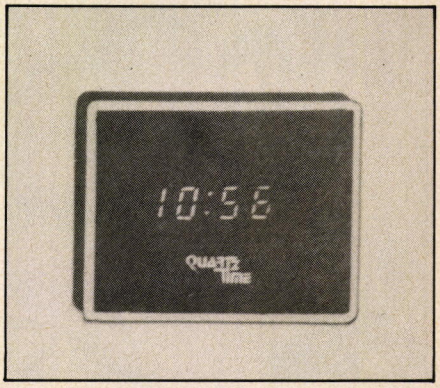
AM/FM STEREO/CASSETTE/QUARTZ CLOCK
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$298.00
A solid-state, integrated-circuit, automatic-eject cassette tape player and AM/FM/MPX stereo radio. LED station frequency indicator. Quartz-crystal controlled clock with hour and minute-setting. Tone, volume, tuning and balance controls, with automatic frequency and automatic gain control circuits. Radio frequency or time display selector switch. Universal fit for radio housings. Warranty information available from DVH.



AM/FM STEREO/8 TRACK
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$109.00
Solid-state AM/FM receiver with local-distance sensitivity switch, balance and fader controls. FM stereo and tape-program indicator lights. Radio tuning scale in tape door.



AM/FM STEREO/CASSETTE PLAYER
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$109.00
Solid-state AM/FM/MPX receiver with local-distance sensitivity switch. Tape player has fast forward, rewind, eject function control. Tone, tuning and balance dials. Universal fit for radio housings.



SP-1 QUARTZ CLOCK
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$34.95
Mounts to any flat surface on fairing. Solid-state electronics, fluorescent digital display. Quartz crystal for accuracy. Pulsating colon indicates seconds and clock operation. Recessed time-setting switches, ABS plastic case, either blue or green display. Warranty: 90 days.

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Ever since Pioneer unleashed its Supertuner® technology on car stereo, the competition has tried to catch up. Tried to match our home hi-fi specs. Tried to duplicate our unique, station-grabbing sound.

But the only thing that sounds like a Supertuner is a Supertuner. And Pioneer now offers an entire line. Including the newest Supertuner of all: the incomparable KP-5500 pictured here.

The KP-5500 gives you FM muting to blank the noise between stations. Useable FM sensitivity of 1.1 μV.

Selectivity of 74 dB. A capture ratio of 1.7 dB.

Team it with a set of Pioneer TS-695 3-way speakers, and you've got a Supersystem that works audible wonders with tape and FM.

Your Pioneer dealer can give it to you at a very reasonable price.

TS-695

KP-5500

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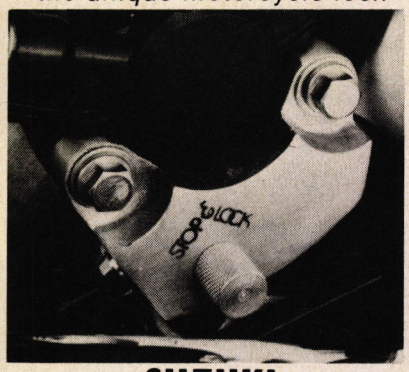

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Kawasaki	55.00
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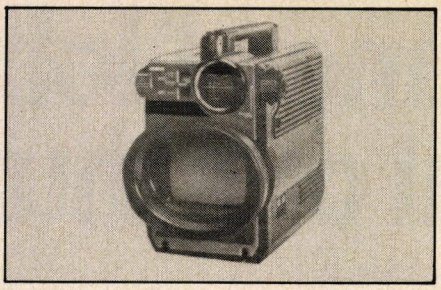
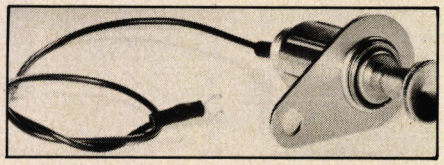
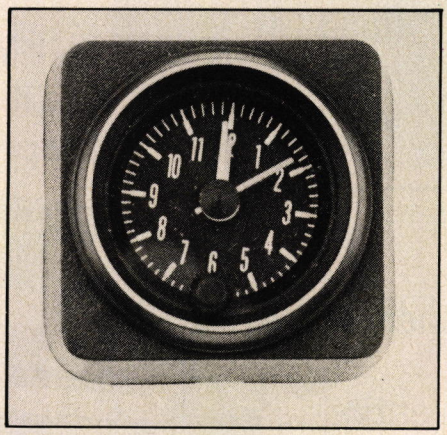


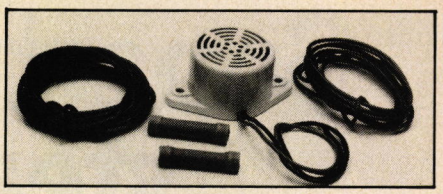
PORTABLE TV
DVH International
Grey Eagle, MN 56336
(612) 285-3611
$149.95
On a tour but don't want to miss "All My Children?" This black-and-white portable TV with a four-inch screen fits into most saddlebags. Powered by nine 'D' batteries, or plugs into cigarette lighter. Weighs six pounds. Warranty information available from DVH.



CIGARETTE LIGHTER
M/C Enterprises
7726 Deering Avenue
Canoga Park, CA 91304
(213) 887-6520
$7.50
Like to smoke and ride? This kit mounts anywhere on the bike. Includes lighter, chrome-plated single-hole mounting bracket, wire lead. Unit accepts appliance adaptors for TVs, electric razors, etc. (Nonsmoking applications include one-finger voltmeter.)

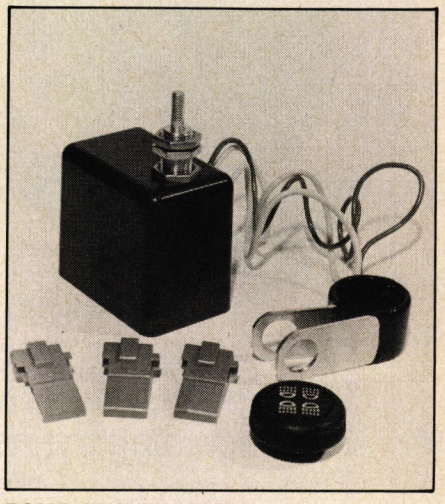


ELECTRIC CLOCK
M/C Enterprises
7726 Deering Avenue
Canoga Park, CA 91304
(213) 887-6520
$74.95
Electric lighted clock from Stewart Warner. Kit includes sending units, wiring and instructions. Super-swivel handlebar mount can be locked in any position for easy viewing. Warranty information available from M/C Enterprises. Fairing-mount model: $59.95.



TURN SIGNAL BEEPER
Sound Off Safety Systems, Inc.
P.O. Box 206
5300 Madison Avenue
Hudsonville, MI 49426
(616) 669-0230
Price: n.a.
A solid-state device that warns of turn-signal operation. Kit includes electronic beeper (75 decibels) with a self-adhesive back, two extra lengths of wire, two wire connectors. Small, lightweight.

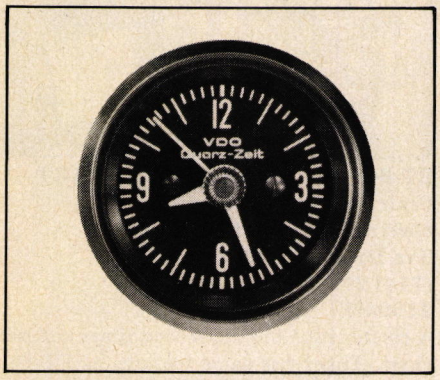
PRIORITY LIGHTS
Sound Off Safety Systems, Inc.
P.O. Box 206
5300 Madison Avenue
Hudsonville, MI 49426
(616) 669-0230
$24.95
A safety coupler which adds tail- and stoplight function to stock rear turn signals. Increase visibility with no extra fixtures or bulbs. Solid-state, weatherproof, seven-wire installation. Adhesive mounting. Does not inhibit normal turn-signal function.



FOUR-WAY FLASHER
Sound Off Safety Systems, Inc.
P.O. Box 206
5300 Madison Avenue
Hudsonville, MI 49426
(616) 669-0230
$13.95
Weathertight ABS plastic box designed to mount either in fairing or on handlebar.

ELECTRICKERY SPECIAL EDITION

Flashes all turn signals, front and back, in hazardous situations. Operates up to six bulbs, only three wires to connect. Complete with instructions and hardware.



QUARTZ CHRONOMETER
VDO-ARGO Instruments, Inc.
980 Brooke Road
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(703) 662-1700
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Claimed unaffected by bumpy roads, the quartz crystal produces four million oscillations per second. Accurate to plus/minus one second per day. Second-hand can be set exactly, unit can be fairing- or handlebar-mounted. Lighted, 12V, one-year warranty.

LECTRIC-VEST
Widder Enterprises
2340 Kingsbridge Lane
Oxnard, CA 93030
(805) 985-7184
$87.92 with thermostat
$69.95 without thermostat
Reversible, oxford weave on one side and satin weave on the other, 200-denier nylon. Urethane coating for windproofing. Standard model with on/off switch, or deluxe with thermostat. Connects to motorcycle battery and draws 36 watts to produce 150 BTUs. Available sizes from 36 to 48, can be worn under most clothing, guaranteed for one year.

What does one of the world's quickest riders know that you don't?

Pro Stock rider Terry Vance: 9 seconds flat and 147.05 mph in the quarter mile!

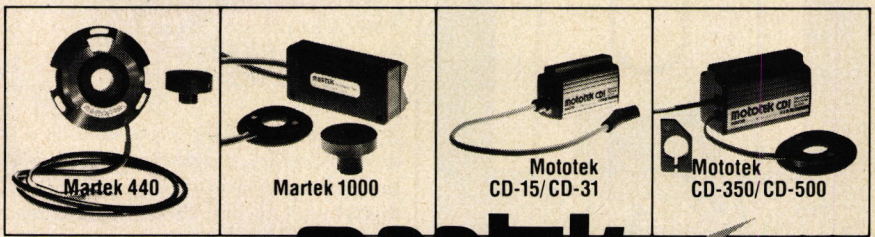
Nothing in the universe is faster than the speed of light. By comparison a speeding bullet is little faster than an inchworm.

That's what Terry Vance knows, and it's why he uses a Martek electronic ignition system in his world record-setting Pro Stock drag bike. No "speeding bullet" type breaker points for him. With Martek he gets greater energy to his spark plugs, and timing events measured in microseconds. Flawlessly. Infallibly.

What does this mean to you and your bike? You can have the same ignition Terry Vance depends on, right off your dealer's shelf. And you never have to go near a drag strip to experience the benefits of Martek electronic ignition. You'll get faster, easier starting. Smoother running at all speeds. More power in accelerating. Better fuel economy. And you'll never have to fuss with points or timing again.

We make easy-to-install kits for almost every bike there is—racing, touring, street, off-road—four, two and one cylinders—four-stroke and two—flywheel/magneto and battery/coil types. Send 50¢ for a Martek decal and catalog information on an ignition for your bike.

Martek makes a difference. And we want you to experience it.



Martek electronic ignitions, easy to install with no special skills or tools required—performance and satisfaction guaranteed.

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Urethane-coated, 200-denier nylon, oxford/satin weave. Designed to be worn underneath pants, secured by elastic straps and Velcro fasteners. Chaps plug into and draw power from Lectric-Vest, for a combined 300 BTUs. Total weight, Chaps and Vest, is 19 oz. One-year warranty.

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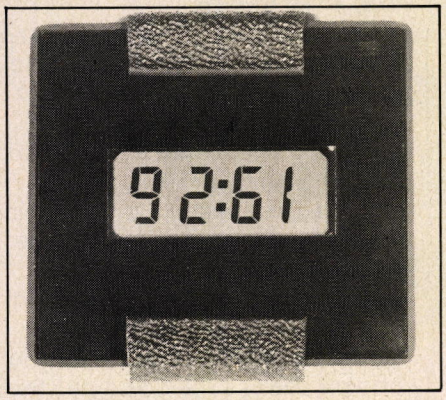

ET-601 ENDURO TIMER
Clairemont Cycle Supply
4461 Clairemont Mesa Blvd.
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(714) 272-1162
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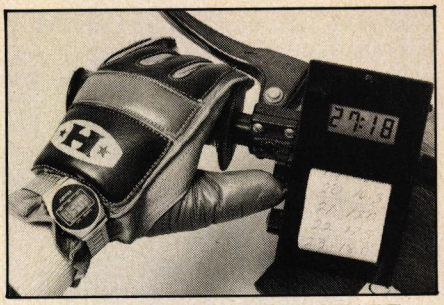

ET-801 TIMER AND ROLL CHART
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(714) 272-1162
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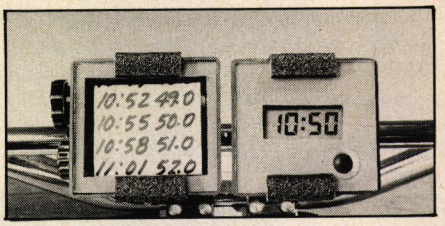

CC-33B ENDURO CLOCK
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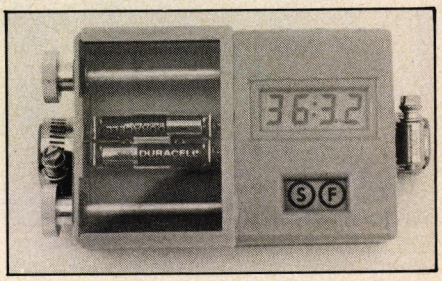

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Countdown Engineering
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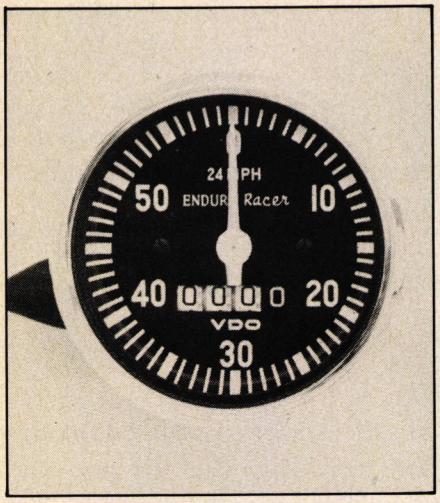

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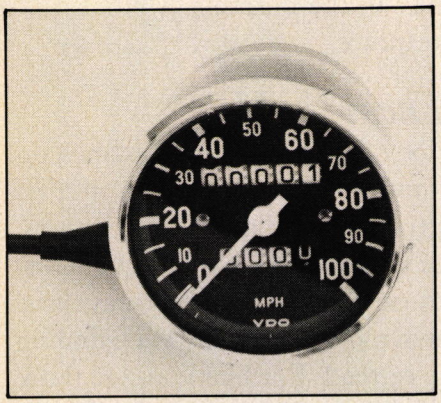

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Naturally, we don't confine our interest to one kind of motorcycling. For instance, we think there's nothing in all the world more fun than doing cross-ups with the spectacular MX machinery available today. Not to mention dodging trees and rocks in enduros. In fact, if it's something you can do with a motorcycle off-road, we're sure to do it.

Which doesn't mean, of course, that we don't work the other side of the trees. Whenever we can, we turn our lively and exhaustive street tests into staff rides, blitzing the twisties and eating up thousands of miles in touring. Because we love street motorcycles as much as dirt bikes.

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Some people seem to think you can't have fun on anything that doesn't have a handful of cylinders and eyeball-squashing power. And some people think that God meant Man only to ride bikes with seven-speed gearboxes and a teacup-full of engine. We're not like either group. We can have fun testing and writing about anything with two wheels and a motor, from crypto-chopper to minibike. So our entire staff is totally conversant with the whole motorcycle spectrum, from tiddler to terror. And consequently, whatever your preferences in displacement and power, you'll find them within the pages of CYCLE GUIDE.

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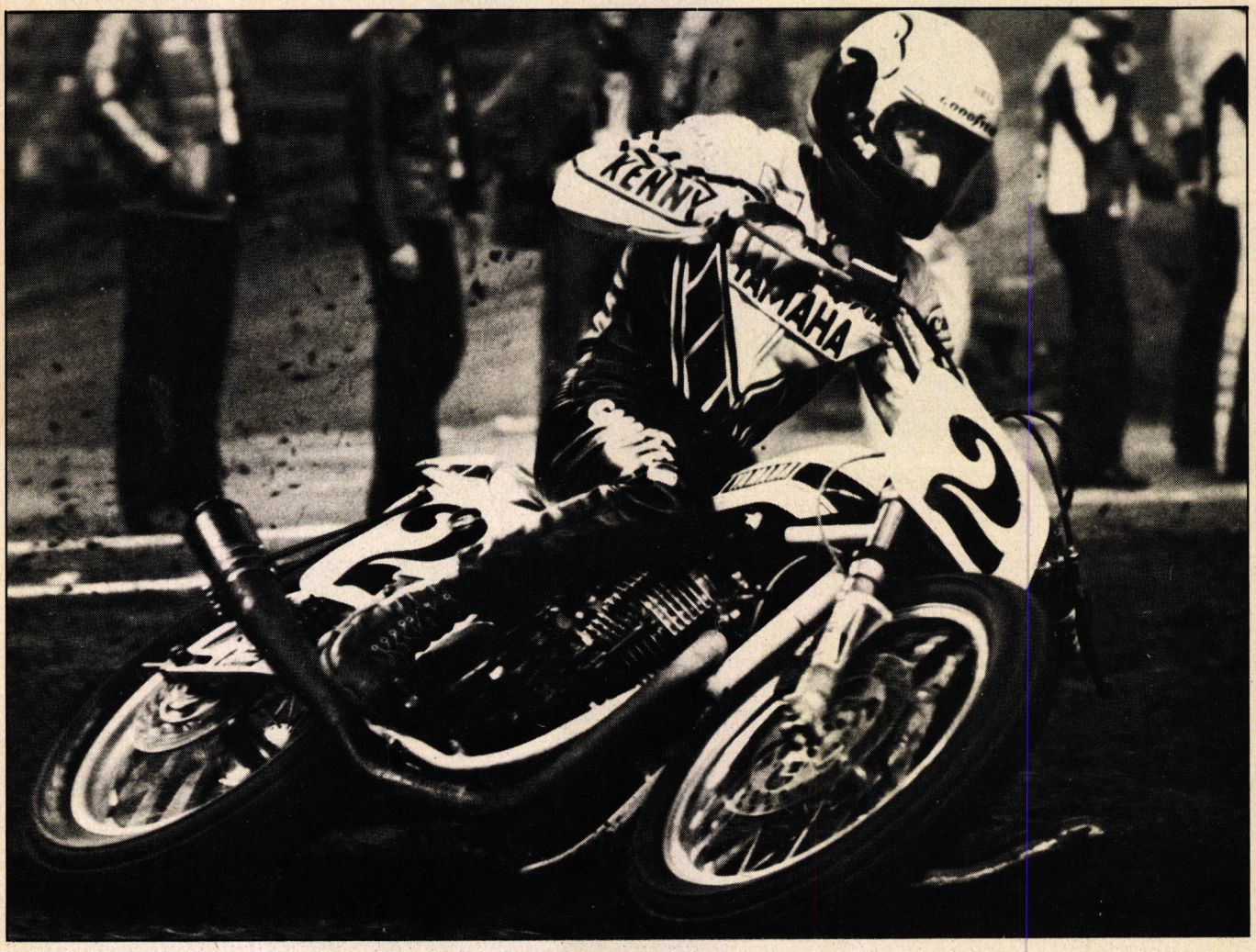
EDITED BY MICHAEL JORDAN



PHOTOGRAPHY: DAVID EDWARDS

Roberts on American Dirt

Playing around in the Astrodome.

• Kenny Roberts returned to Houston and American dirttrack racing for one reason.

Sure, there was talk that he was after Bart Markel's record of 28 career AMA victories. But that wasn't why he returned. Roberts almost certainly would have attained the required wins at future Grand National roadraces. And if he felt the need to prove to American audiences that he could still throw a motorcycle around a dirttrack, his fellow competitors and the almost 60,000 fans that came to the Astrodome already knew that he could. Some might even say that Yamaha, Roberts' sponsor and also primary sponsor of the Houston races, put pressure on the World Champion to appear. But then, as the FIM can verify, nobody tells Roberts what to do.

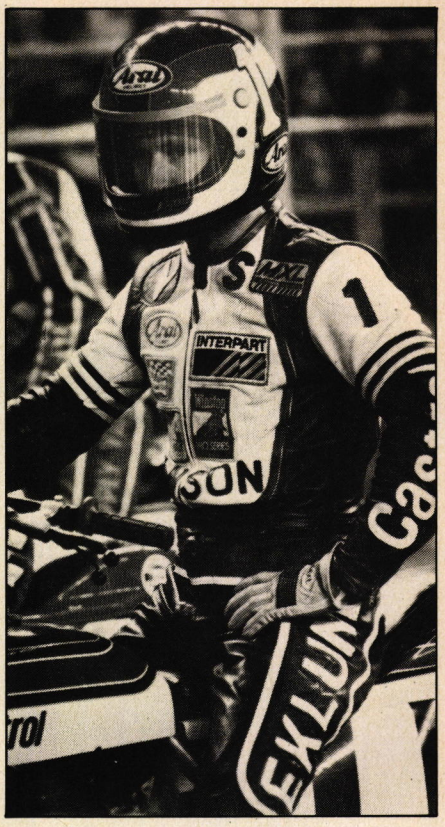
BARBARA BARKLEY

The reason Roberts returned to the Astrodome after a two-year layoff from AMA dirttrack competition was to enjoy himself. And if you are Kenny Roberts, enjoying yourself means roaring full blast up to a corner, planting

Continued

Roberts matched against new Harley teamster Randy Goss in shorttrack heat

Introducing the old man to dirttrack wizards with no respect for age.



Eklund halves his number plate

The pressure never lets up for No. 1.

your metal-shod foot and squirting through in a nearly full-lock slide. To be sure, Roberts came to win, to ride the wheels off his Mert Lawwill-prepared bikes if necessary. But in the relatively safe confines of the Astrodome, he intended to have fun, too.

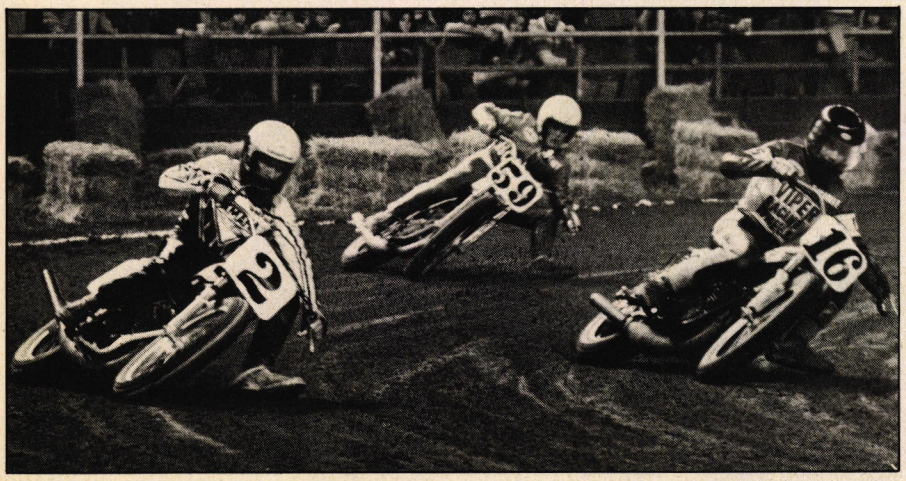
When KR wasn't on the track qualifying, winning his heat races, taking the TT victory or placing third in the shorttrack finale, he was doing what everybody does when they visit old stomping grounds. He renewed old friendships and met racers who didn't have their competition licenses when he left dirt racing to conquer the roadracing world in 1978. He joked about his golf game with officials and the gaggle of photographers that followed his every move. He waved to the crowd, signed autographs and, well, just enjoyed being there.

In the end, he really enjoyed the TT race, but at first his comeback seemed threatened as Alex Jorgensen pulled out a sizable lead with his vintage BSA. Roberts switched from the line to the cushion and back to the line with his Yamaha 500 single in an attempt to catch Jorgy, finally drawing alongside and fighting off the BSA (which had sucked a valve) on lap 17 to take the win. In the following night's shorttrack, things didn't quite go his way in the same fashion, for he finished third after Ronnie Jones and Mickey Fay passed him.

It was Ronnie Jones, a second-year rider, who put an end to Roberts' chances of scoring a Houston double like that of Steve Eklund's 1978 triumph, but in the press box after the race, Jones best summed up the reaction of the AMA dirt-trackers to Roberts' return. A reporter asked Roberts a question about racing in Europe and dealing with the FIM. After KR answered, Jones, who had just collected the largest paycheck of his racing career—$6000—turned to the millionaire racer and said, "I just want to tell you we're all proud of what you've done over there."

Roberts smiled and said, "Thanks."

—David Edwards

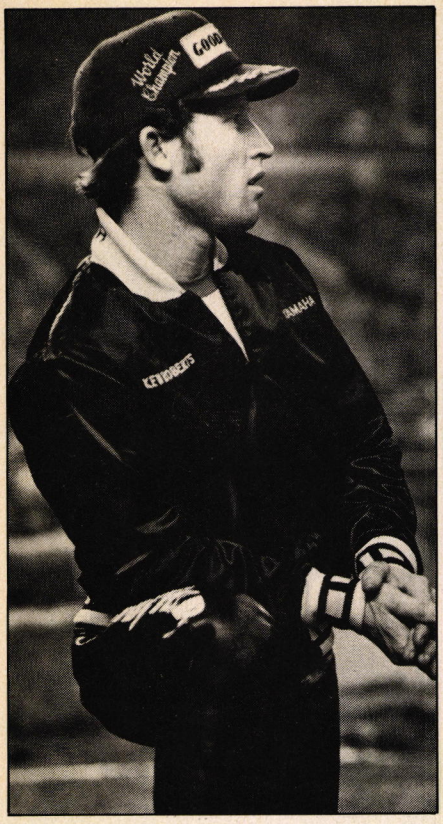


Jones takes the inside line to shorttrack victory while Fay takes aim on Roberts

Two new-generation gunslingers shoot down Roberts' hopes for a double.

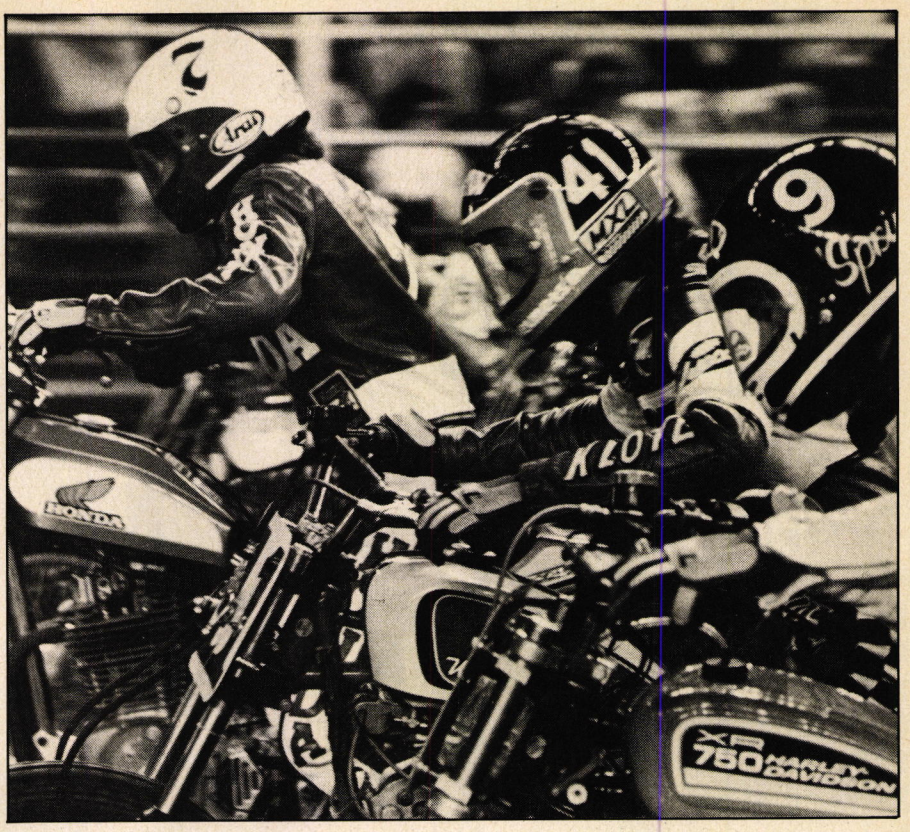
Springsteen in TT heat

Felled by illness again.



Roberts in mufti

Wearing a very exclusive hat.



Spencer and Honda get the jump on Ricky Graham and Springsteen in TT heat

Leading the charge toward a new year of American Dirt.

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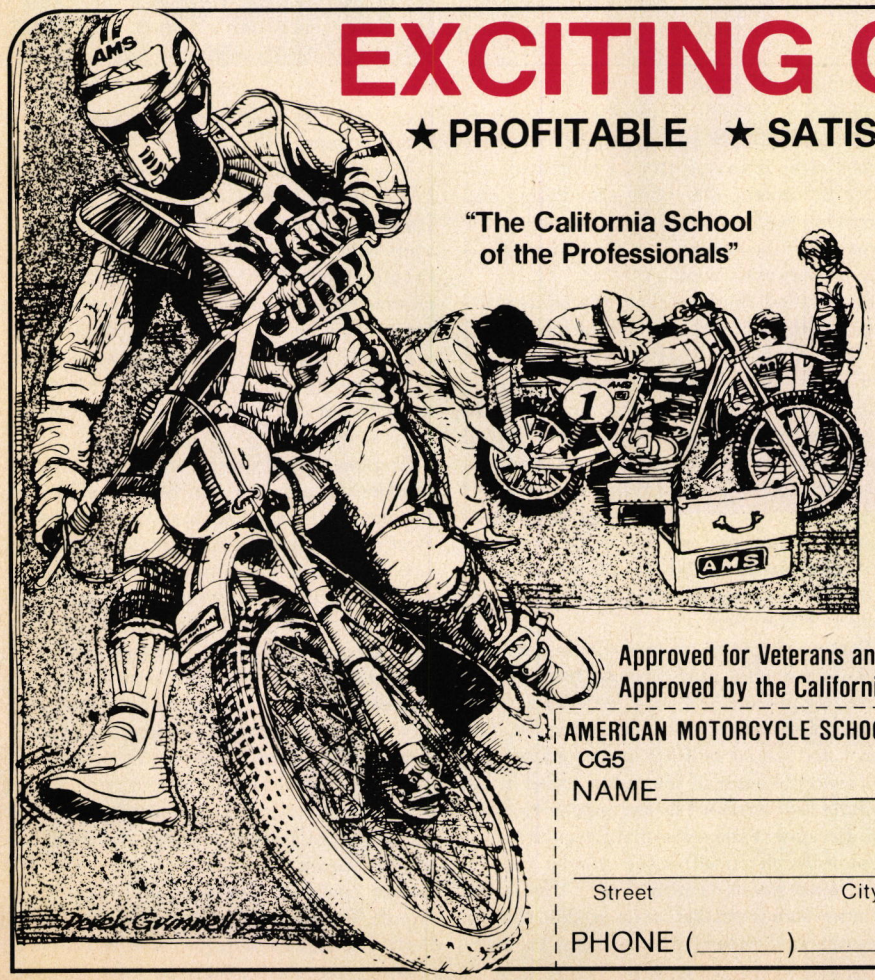

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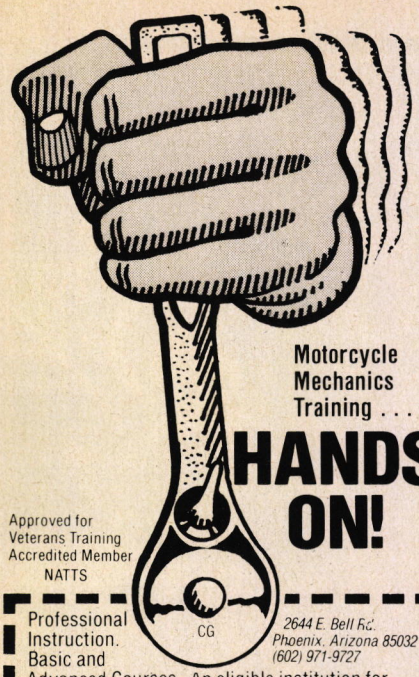

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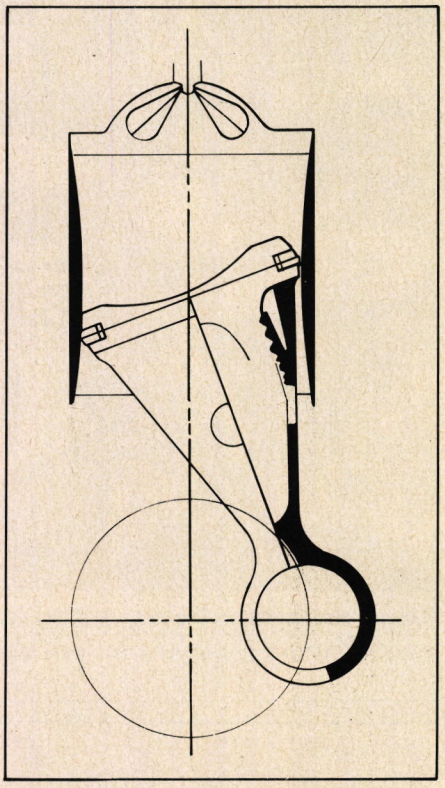
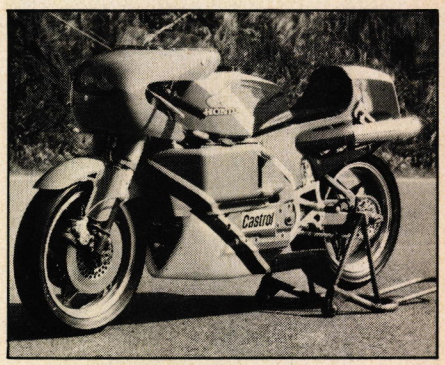
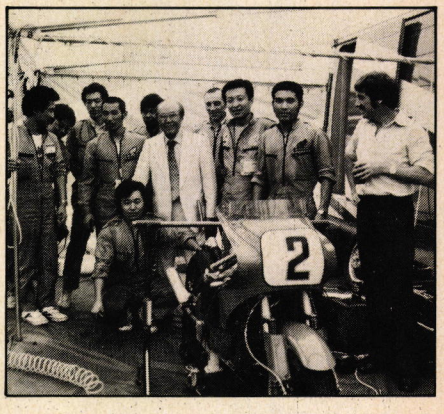
ROADRACING:

Square Pegs in a Round Hole

New thinking about Honda's NR500 mystery ship.







• There's not much mystery about the way Honda's NR500 GP roadracer performs these days—so far, it's a slug. But the machinery still holds its secrets, attracting speculation and comment even while its humiliation on the racetrack in the final races of the 1979 season is still on everyone's mind.

So far, most thinking about the tandem V-4 engine with its 20,000-rpm redline has focused on the V-8 theory—that is, Honda shrank a tandem V-8 into the NR500 configuration, resulting in oval combustion chambers, eight valves per cylinder and some kind of oval piston, perhaps two-piece in design served by a yoked connecting rod. In response to the V-8 theory comes a more far-seeing alternative from an engine designer in Detroit, however. And his choice in the NR500 lottery features a design often whispered about but seldom discussed—rectangular pistons.

That's right, folks, pistons with square corners. Actually, the shape derives from the use of rocking pistons. The term describes a piston that isn't articulated on a connecting rod. The piston and rod actually are integrated into one unit, and the angle of the piston crown in the cylinder is determined by the angularity of the rod. Because of the somewhat irregular movement of the piston within the cylinder, the cylinder walls have a venturi shape—that is, the cylinder bore is smaller in the middle than at the ends. And instead of piston rings, the rocking piston uses seals similar to those found in rotary engines.

The rocking piston concept can be traced to a 1972 patent by Swiss engineer W. Salzmann. He converted a standard automobile engine to rocking pistons in 1976 and drove it several thousand miles. His experiment led to the conclusion that the rocking piston seemed most compatible with a rectangular piston, for a greater displacement can be achieved than with a square-shaped rocking piston with the same weight and bulk. Also, cylinder machining is simplified.

Engineers cite several important characteristics of this design that could benefit a high-revving, high-output engine like Honda's V-4. First of all, friction can be reduced markedly, since the piston doesn't thrust a large surface sideways against the cylinder bore, an important consideration at 20,000 rpm. In addition, the rocking piston reduces weight and bulk, both of which foster higher piston speeds. The absence of a piston pin also permits the design of a very evenly stressed piston crown, permitting the use of the latest developments in ceramics for lighter, slicker pistons.

No doubt speculation about the secrets of the NR500 engine will continue no matter how it performs on the track. Our secret source in Detroit confirms one suspicion, however—the Honda V-4 does not use piston rings from the Perfect Circle company. —*Michael Jordan*

Continued

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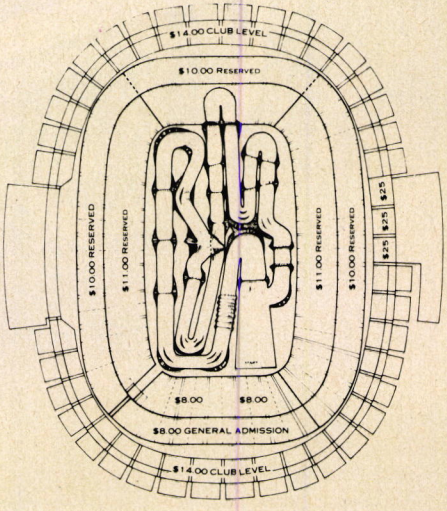

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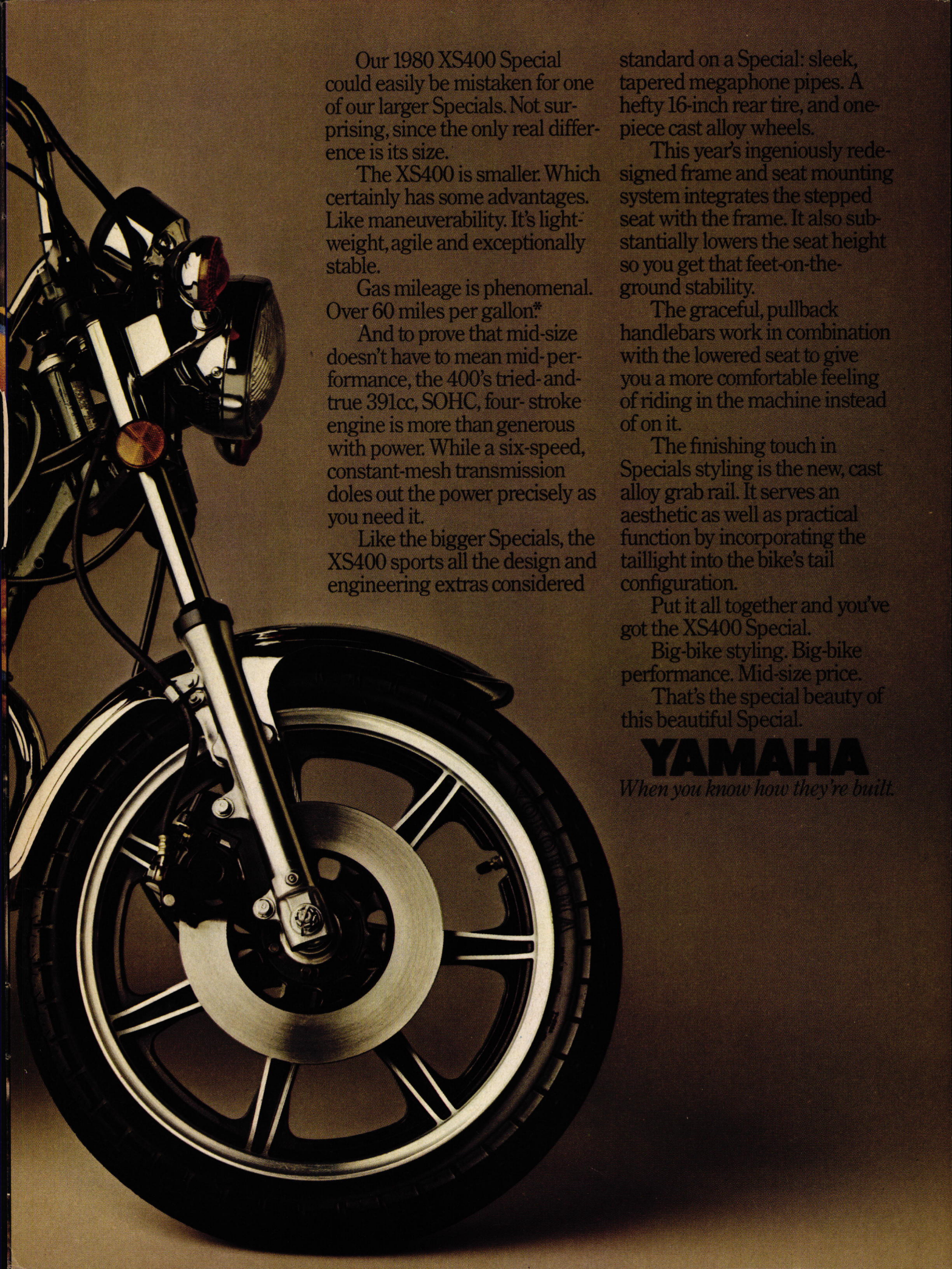

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Martin Lampkin -British Bulldog

Damn the finesse, full speed ahead.

PHOTOGRAPHY: LEN WEED

• If Martin Lampkin were an airplane, he'd be a British Spitfire—traditional, battleproven, but most of all, fast. The only thing the two-time World Champion of Trials does slowly is change motorcycles.

Lampkin repudiates the trials-is-slow cliché. He bulls, he barges, he gives it full Wellie, as the trials guys say. He refuses to trust finesse in a sport where failure is just a heartbeat away. Raucous, unrelenting momentum is his trademark. Like a lovesick rhino, he figures if he hits something hard enough, he'll get over it.

The youngest of three motorcycling brothers in Yorkshire, Lampkin displays the old-school riding style developed by stouthearted and strong-armed English trials competitors of the past who were accustomed to 350-pound four-stroke sleds rather than today's 200-pound two-stroke bikes. The style is basic. You clamp your legs around the bike, wick up the throttle and hold on. This approach brought Lampkin the European championship in 1973, the first official world championship in 1975, two British championships and a record-tying three consecutive firsts in the Scottish Six Days Trial.

Big Mart, age 29, comes by his propensity for propulsion as a matter of heritage. His oldest brother Arthur was runner-up for the 250cc European motocross championship in 1961. Arthur also won two British motocross championships and four ISDT gold medals for the British Trophy team. Brother Sid has three ISDT golds to his credit and won the British Experts, the most esteemed of England's annual trials events. Sid also was the last rider to win the Scottish Six Days aboard a four-stroke, a BSA in 1966.

Martin also dabbled in ISDT riding and motocross before concentrating on trials. He won a silver medal in one ISDT, but his

first effort was indicative of the ferocity with which he attacks terrain—the engine completely fell out of his bike on Day Six. His motocross career, meanwhile, was shorter and less successful than that of his brothers. "I did motocross, but I was a bloody threat, you know," he remembers. "I thought me life was going to come to a very

rapid end. I remember passing Sid once. Very spectacular. I wasn't on the machine at the time."

Martin Lampkin found his niche in trials. To date he has won more than 15 championship trials riding for Bultaco. He's proudest of his first win in the Scottish Six Days Trial in 1976, though, because it gave his family a unique hat trick: wins by all three brothers.

Lampkin rarely practices during the week. His physical training is competition-oriented: rugby, squash and swimming. After trying running, he remarked, "Running on me own was bloody miserable. I didn't know what to do with meself." To improve his concentration, Lampkin also plays golf. His escapades on the golf course include a participation in a world record of sorts—the fastest 18 holes. Martin piloted a club pro around the course on a sidecar.

As you might suspect, Lampkin's traditional straight-on style collides with the increasing use of finesse in world trials competition. But he keeps charging. In fact, his appetite for acceleration sets him apart from his Bultaco teammates. They prefer the standard 326cc trials engine. But for years Big Mart has fooled with various big-bore versions ranging from 348cc to 370cc. The modifications sacrifice some bottom-end response, but they add mid-range punch—and for Lampkin that's what the game is about. He attacks obstacles rather than spend time figuring a route around them. As a result, he rarely gets penalized for exceeding his time allowance.

In motion, Lampkin personifies a British bulldog, his chest and shoulders as broad as his lust for speed. Progress, with its bow-legged riding stance and wheelie turns, doesn't faze him. Like the noble Six Hundred of the Light Brigade, Lampkin thunders onward, his calling card preceding him—a jutting, truegrit jaw. —*Len Weed*

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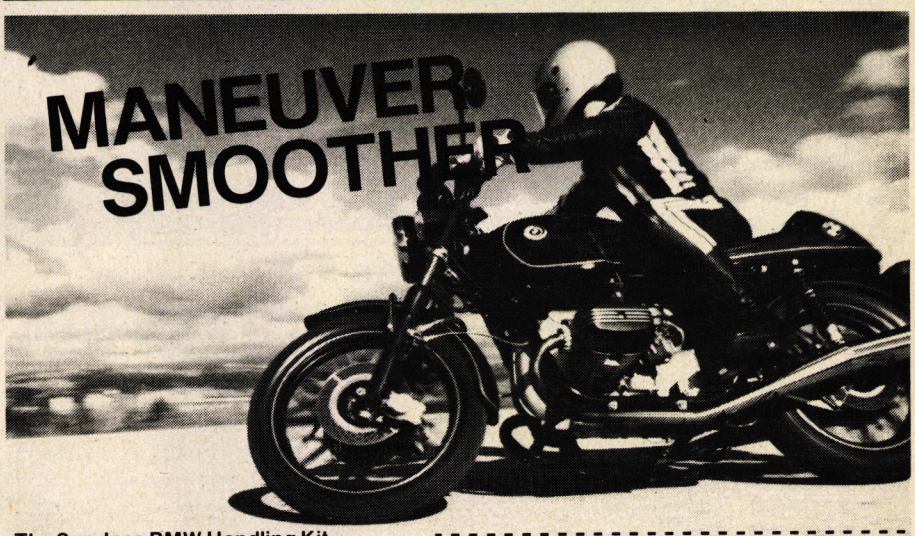

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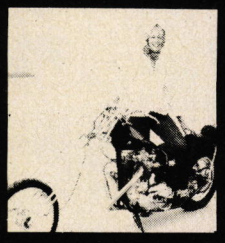

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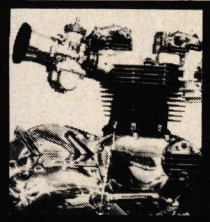

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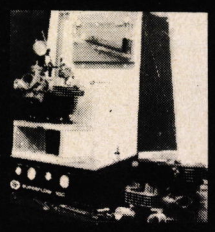

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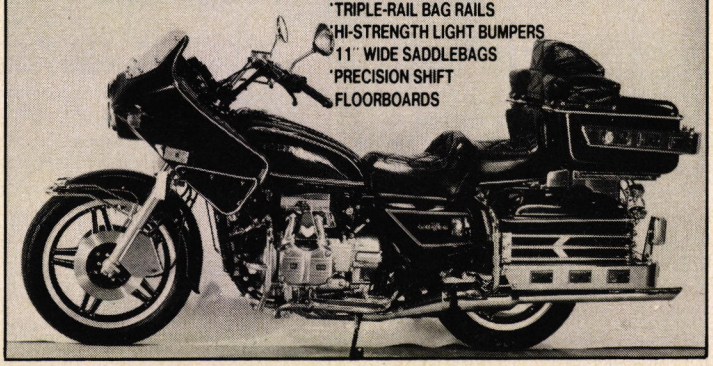

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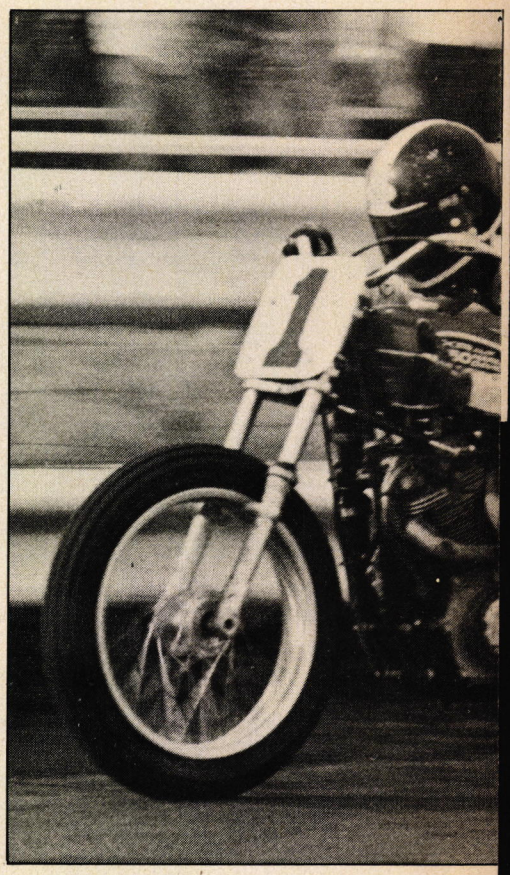
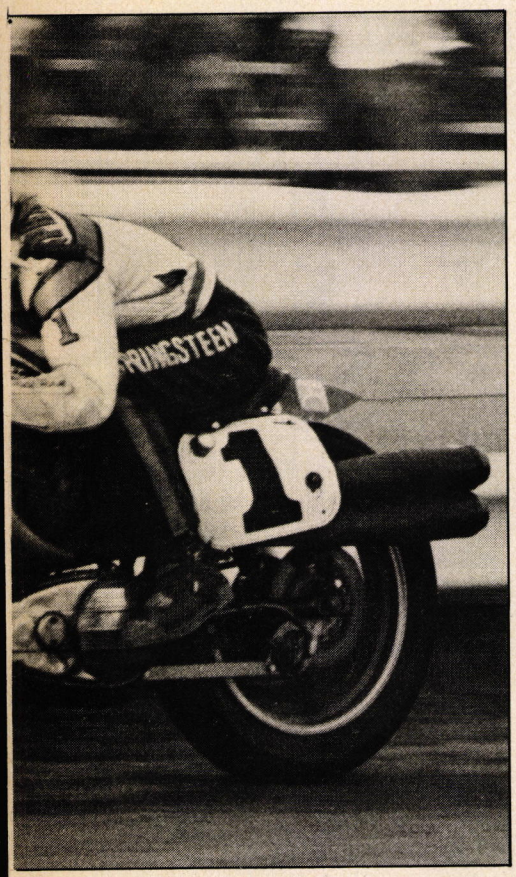


• Shortly after the Houston National, Harley-Davidson granted its No. 1 rider Jay Springsteen a leave of absence to clear up the physical problems that have plagued him since last year. Springsteen in fact was hospitalized following the Houston TT with the nausea and stomach problems that continue to baffle doctors. Various causes have been ascribed to Springsteen's condition, including diet and nerves, but no solution to the problem appears imminent.

• Honda's NR500 will reappear on the GP track in 1980, despite its poor showing at the two concluding races of 1979. Reports indicate that engine power has been boosted while numerous changes have been incorporated into the aerodynamics and braking systems. Meanwhile, the 16-inch wheels definitely have been abandoned for conventional 18-inchers.

• According to reports in European publications, the 125cc GP motocross circuit might get its own version of a national all-star race like the Motocross- and Trophee des Nations, bolstering the prestige of the 125 class. It's too late to include the event on the 1980 calendar, however.

• American roadracer Randy Mamola has signed with Suzuki Great Britain to compete on the GP circuit during 1980. Meanwhile, other prospective members of the World Series organization, including Kenny



Roberts, have signed agreements to race in 1980 FIM Grand Prix events as well, largely because threatened FIM action has discouraged tracks from promoting World Series events. At the moment, rebellious riders are devoting most of their effort to the Professional Riders Association, for the World Series has been postponed until 1981, if indeed it ever appears at all.

- Action at the recent FIM congress included a review of motocross circuits and a number of recommendations were made. As far as U.S. circuits are concerned, Carlsbad has been instructed to reduce speeds. Meanwhile, Mid-Ohio, the location of the 125 GP, will provide timekeeping.
- Some significant reshuffling has occurred in the dragracing world as the sport acquires more prestige and manufacturers pump more money to the sport. Pro Stock rider Terry Vance and tuner Byron Hines have departed R.C. Engineering to devote more time to their Suzuki with their own company, VHR (Vance-Hines Racing). Ironically, Vance's long-time rival Bob Carpenter will now be racing his Kawasaki with the help of the R.C. crew, setting up yet another Suzuki-Kawasaki confrontation in Pro Stock during 1980. Meanwhile, Jim Teson and Ron Bernard have moved their XS Eleven Top Fuel monster from the R.C. stable to the VHR banner. •

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Bob Hannah grew up riding in the world's biggest motorcycle playground, the Mojave Desert. Hundreds of square miles of challenging hills, monstrous whoops, sand dunes and fire roads provided the variety of challenges that Hannah needed to develop the skills he has used to dominate in pro-level motocross.

Current 500cc National champ Danny LaPorte also uses the California desert to hone his skills. Near his parent's home in Yucca Valley, LaPorte has built a track that the Suzuki rider tests new bikes on. "It's a neat track with real steep hills and sandy bumps. We just finished testing our new suspensions here," LaPorte says. Teammate Kent Howerton comments, "It took me a day and a half to learn how to go fast on Danny's track."

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Kent Howerton at Sears Point moto

After practicing at home on the range.

Lackey at Carlsbad

Practice makes perfect.

Howerton has a pretty nice setup on his own turf, near his home in San Antonio, Texas. "I belong to this club that leases a motocross track and also has riding areas around it," he says, "We all have a key and can just go down and ride anytime. There's a tractor there and if I want to change the track or add jumps or something I just do it." Howerton's track offers a relaxed environment in which to train, and his success in AMA racing last year attests to its value.

Yamaha star Rick Burgett has two tracks he practices on. "I ride a lot at my Dad's house. He has 10 acres and my Uncle has 10 and we built our own track right there on the land. We even have a Caterpillar to prep or change the track with." Two miles from Burgett's Oregon home is another track built on a hill. It offers such good conditions that Honda teamsters Chuck and Ron Sun drive 50 miles to ride it.

Perhaps it is Kawasaki rider Brad Lackey, though, who has the best practice set-up. Several years ago Lackey bought a small ranch in the Northern California foothills and developed his own GP course right in the proverbial back yard. Lackey can ride out of his garage and onto the course, put in a good day's training session and be back in time for lunch.

Maybe you'll never have your own personal track and you may never learn to ride as fast as the top Pros—but at least now you have a good excuse for getting beaten. —*Terry Whytal*

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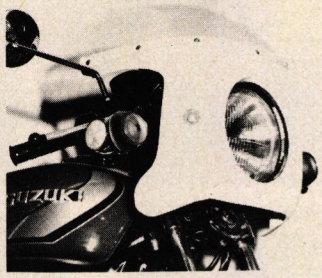

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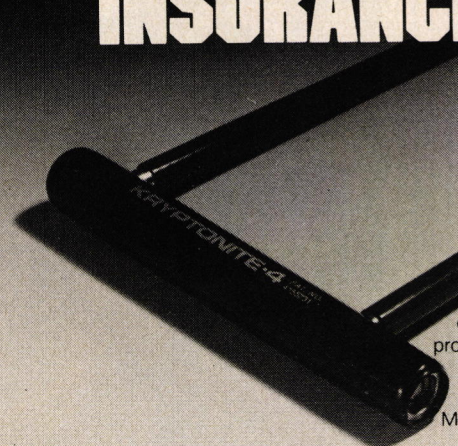

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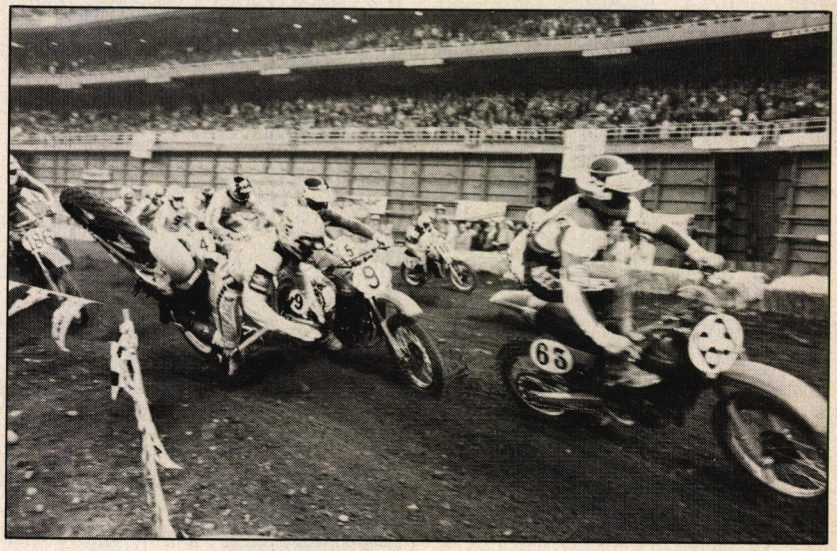

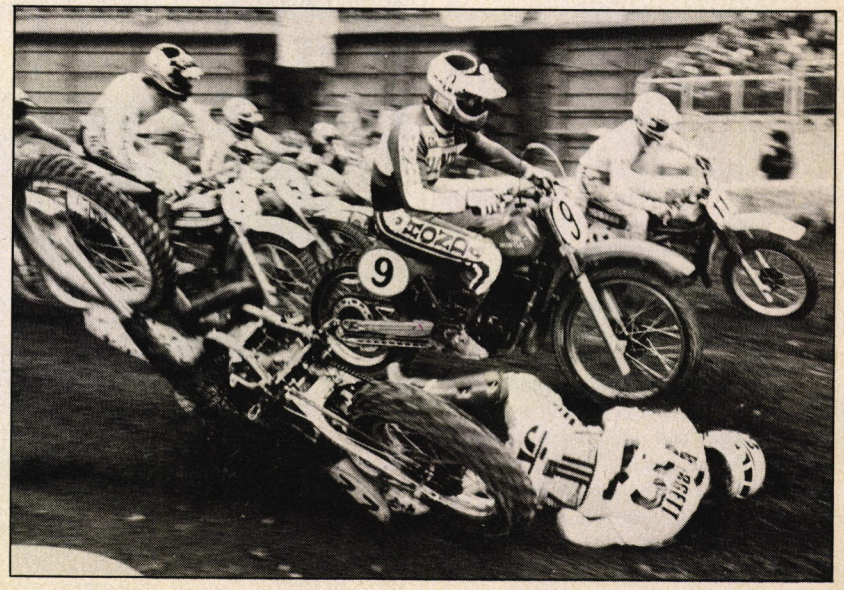

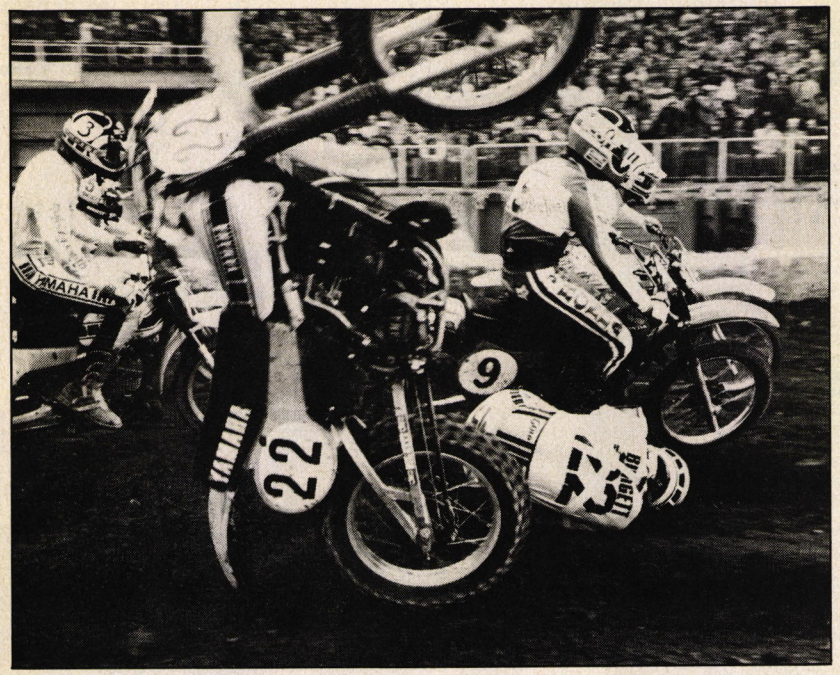

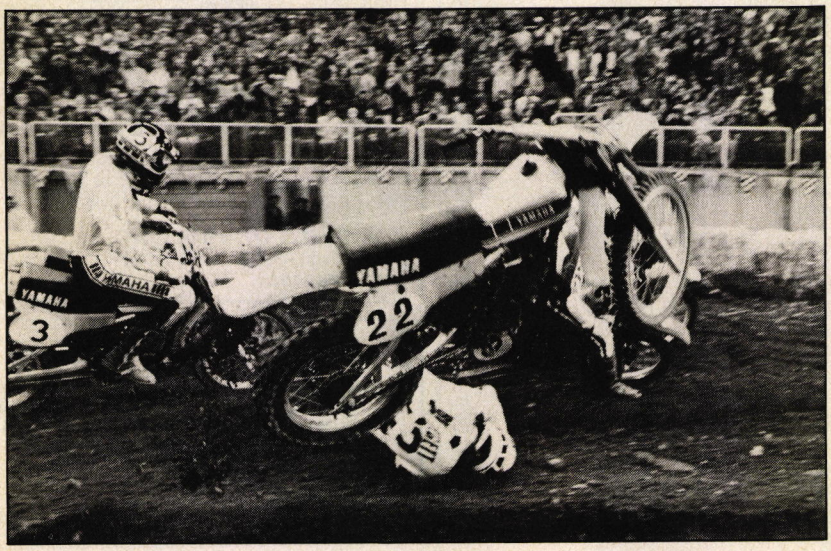

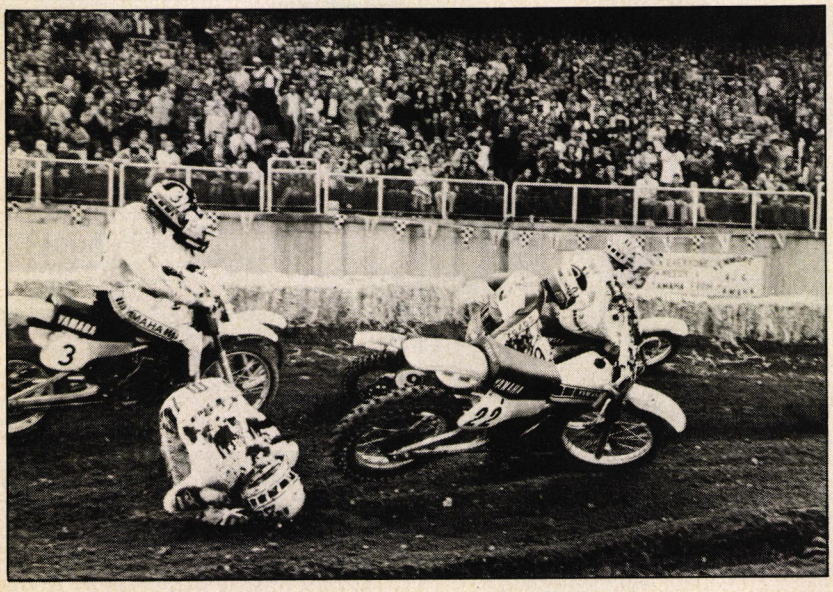

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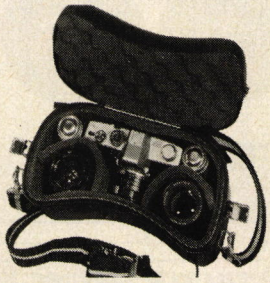

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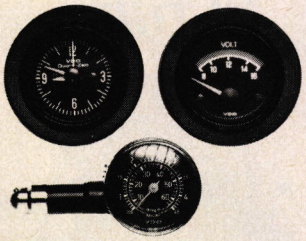

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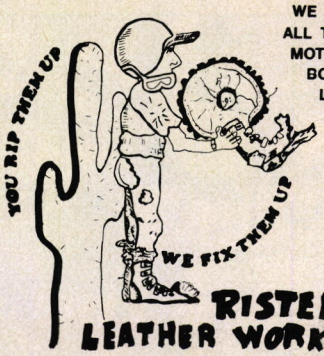

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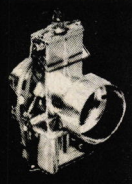

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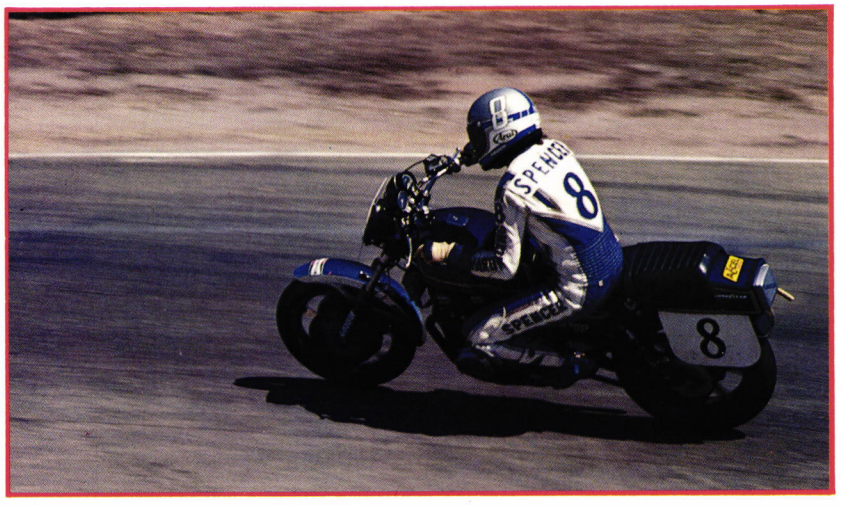

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